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DEPARTMENT OF THE INTERIOR  
Bureau of Land Management

THE L SITE-SPECIFIC ANALYSIS  
FOR THE PROPOSED  
POINT OF ROCKS COAL TRACT

Located in Sweetwater County, Wyoming

Prepared by Rock Springs District

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November 1982

TRACT SUMMARY REPORT  
Minerals Management Service, North Central Region  
June 25, 1982

TRACT DESCRIPTION

Tract Name: Point of Rocks

Coal Region: Green River/Hams Fork

State: Wyoming County: Sweetwater

BLM Resource Area and Planning Unit: Big Sandy Resource Area

USGS Quadrangle Map(s): Point of Rocks (7 1/2 minute quad.)

Legal Description: Will be furnished by the Bureau of Land Management

Known Recoverable Coal Resource Area (KRCRA): Rock Springs KRCRA

Total Coal Tract Acreage: Approx. 4,908 Acres

(Includes all lands; Federal, State, and Fee.)

Federal Coal Tract Acreage: Approx. 2,078 acres

Federal Mineable Coal Acreage: Approx. 706 acres

Estimated In-place Federal Coal Resources: 34.0 Million Short Tons  
(calculated for economic coal beds at least four feet thick to a maximum depth of 200')

Estimated mineable Federal Coal Resource: 16.0 Million Short Tons  
(calculated using a maximum stripping ratio of 7:1)

Estimated recoverable Federal Coal Resources: 13.6 Million Short Tons  
(calculated using 85 percent recovery of mineable resources)

Private Coal Tract Acreage: Approx. 2,350 acres

Private Mineable Coal Acreage: Approx. 434 acres

Estimated In-Place private Coal Resources: 32.0 Million Short Tons  
(calculated for economic coal beds at least four feet thick to a maximum depth of 200')

Estimated Mineable Private Coal Resources: 10.6 Million Short Tons  
(calculated using a maximum stripping ratio of 7:1)

Estimated Recoverable Private Coal Resources: 9.0 Million Short Tons  
(calculated using 35 percent recovery factor of mineable resources)



State Coal Tract Acreage: Approx. 480 acres

State Mineable Coal Acreage: None

Estimated In-place State Coal Resources: None  
(Calculated for economic coal beds at least four feet thick to a maximum depth of 200')

Estimated Mineable State Coal Resource: None

Estimated Recoverable State Coal Resources: None

ENTITIES EXPRESSING INTEREST

Rocky Mountain Energy

White Pine Power Project

10 Longs Peak Drive

P.O. Box 111

P.O. Box 2000

Los Angeles, CA. 90051

Broomfield, CO 80020

TRACT POTENTIAL FOR DEVELOPMENT

EVALUATION FACTORS	CLASS 1	CLASS 2	CLASS 3
Coal Resource Data	X		
Coal Quality		X	
Transportation	X		
Mineability		X	
Marketability	X		
Overall Class	X		

Class 1: Good potential  
Class 2: Moderate potential  
Class 3: Poor potential



The class for each evaluation factor was determined as follows:

A. COAL RESOURCE CLASS DESIGNATION

CLASS 1: Good

Confidence in resource estimates is good because the surface areas of category "A" and "B" resources cover two-thirds or more of the total surface area of the tract.

CLASS 2: Moderate

Confidence in resource estimates is moderate because the surface areas of category "A" and "B" resources cover one-third to two thirds of the total surface area of the tract.

CLASS 3: Poor

Confidence in resource estimates is poor because the surface areas of category "A" and "B" resources cover one-third or less of the total surface area of the tract.

- B. COAL QUALITY - The coal quality is comparable to other coals currently being produced in the same area. The coal is generally of marketable quality.
- C. TRANSPORTATION - The nearest railhead is Prospect Point, approximately 2 miles east of the tract. Coal could feasibly be hauled by truck to the loadout facility for shipment to market. No new rail lines will need to be built.
- D. MINEABILITY - The coal is recoverable by surface mining methods with an expected recovery factor of 85%. The maximum economic stripping ratio is anticipated to be 7:1, or less, for coal 4' thick or greater. Maximum mining depth will be less than 200'.
- E. MARKETABILITY - Two expressions of interest were received for the tract. One of the interested parties, Rocky Mt. Energy Co. reportedly has a small mining operation in sec 33, T. 21 N., R. 101 W.
- F. OVERALL EVALUATION - Good coal resource data, transportation, and marketability potential make the overall tract development potential "good."

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# COAL RESOURCE CATEGORY DEFINITIONS

## CATEGORY "A" RESOURCES

Resource quantity is estimated from data sources that are adequately spaced to assume, with a high degree of confidence, continuity between data points. The geologic character of the area is well defined.

## CATEGORY "B" RESOURCES

Resource quantity is based on an assumption of continuity between data points with a lower confidence level than that of category "A" resources. The geologic character of the area is not as well defined as category "A" resources.

## CATEGORY "C" RESOURCES

Resource quantity is based on an assumption of what can reasonably be expected to exist in the same producing region under analogous geologic conditions with a lower confidence level than that of either category "A" or "B".

## TRACT POTENTIAL FOR DEVELOPMENT

### PRIVATE IN-PLACE COAL RESOURCES OF POINT-OF-ROCKS TRACT

COAL BED	AVERAGE THICKNESS (FEET)	RESOURCES (Million Short Tons)		
		CATEGORY A	CATEGORY B	CATEGORY C
A-4	4.6	13.6		
A-3	3.9	7.8		
A-2	4.5	10.6		
Total		32.0		

Coal Resources were calculated using the accepted unit weight of 1770 tons per acre-foot for subbituminous coal.

OVERBURDEN/INTERBURDEN THICKNESS RANGE

(For mineable resources only)

<u>Coal Bed</u>	<u>Thickness Range (feet)</u>
A-4	20 - 150
A-3	20 - 35
A-2	20 - 40

FEDERAL MINEABLE COAL RESOURCES (Million Short Tons)

<u>COAL BED</u>	<u>MINEABLE</u>	<u>RECOVERABLE (85%)</u>
A-4	6.7	5.7
A-3	3.9	3.3
A-2	<u>5.4</u>	<u>4.6</u>
Totals	16.0	13.6

PRIVATE MINEABLE COAL RESOURCES (Million Short Tons)

<u>COAL BED</u>	<u>MINEABLE</u>	<u>RECOVERABLE (85%)</u>
A-4	4.5	3.8
A-3	2.6	2.2
A-2	<u>3.5</u>	<u>3.0</u>
Totals	10.6	9.0

## COAL GEOLOGY

The coal members delineated by the Point of Rocks Tract lie in the Upper Cretaceous Almond Formation. Three coal beds were determined to be economic and were included in the tract summary, although as many as ten coal beds occur in some measured sections. The coal beds not identified in the tract report were determined to be subeconomic.

The coal outcrops in a northwest-southeast trending line and dips to the northeast at 4 to 12 degrees. A small acreage is being mined in section 33 on private land.

Normal faulting exists in the southeastern part of the tract. This will have a minimal effect on recovery as coal resources are minor in that part of the tract and fault displacement appears to be small.

Three KGS areas occur within the tract.

Four unsuitable areas are contained within the tract boundary (see attached map).

No known potential geological hazards exist within the tract.

Should there be a definite impact from the above noted KGS or unsuitable areas, coal stripping operations would be seriously affected.

The coal is oxidized to approximately 20 feet below the surface. The 4 to 12 degrees dip of the coal beds do not preclude strip mining, but it will necessitate a strip-type operation similar to that of the Jim Bridger operation.

### UNSUITABILITY CRITERIA<sup>1</sup>

There are four areas within the Point of Rocks Tract classified as unsuitable according to BLM classification.

Beginning in the northern part of the tract, the areas are listed with the corresponding amount of contained coal resource. They are labeled A through D on the work sheet.

- A. NW 1/4 NE 1/4, sec. 32, T. 21 N., R. 101 W. -  
- includes 40 acres of Federal land

In-place coal resources are estimated at 0.82 million short tons of which approximately 0.07 million short tons are mineable.

- B. S 1/2 NW 1/4 and NE 1/4 SW 1/4, sec. 8, T. 20 N., R. 101 W. -  
- includes 120 acres of Federal land  
estimated at 0.40 million short tons of which 0.40 million short tons are mineable.

- C. NW 1/4 SW 1/4, section 22; T. 20 N., R. 101 W.  
- includes 40 acres of Federal land

In-place coal resources are estimated at 0.12 million short tons of which 0.12 million short tons are mineable. Unsuitable area C is within the boundary of an unnamed KGS area.

- D. W 1/2 NW 1/4 & NE 1/4 NW 1/4, sec. 26; T. 20 N., R. 101 W.  
- includes 120 acres Federal land

In-place coal resources are estimated at 1.76 million short tons of which 0.73 million short tons are mineable.

<sup>1</sup>Land descriptions are approximate. Lot numbers not used.

# COAL QUALITY

COAL BED	NUMBER OF SAMPLES	MOISTURE	VOLATILE MATTER	FIXED CARBON	ASH	SULFUR	BTU/LB
A-4 <sup>1</sup>	NA	NA	NA	NA	7.89	0.48	9,762
A-3 <sup>1</sup>	NA	NA	NA	NA	9.82	0.49	9,870
A-2 <sup>1</sup>	NA	NA	NA	NA	12.62	0.58	9,359
Almond <sup>2</sup>	NA	16.4	31.0	47.7	5.0	0.6	9,727
General <sup>3</sup> Area	NA	20.5	29.1	40.7	9.7	0.47	9,350

<sup>1</sup> ALMOND FORMATION (Courtesy of Rocky Mountain Energy, unpublished data, 1978)

<sup>2</sup> ALMOND COAL BEDS (Average) from Glass, G.B., 1981, Coal Deposits of Wyoming, p. 200-201, in Wyoming Geol. Assn. Guidebook, 32nd Annual Field Conf.: p. 181-234

<sup>3</sup> DEADMAN COAL BED (typical) of Ft. Union Fm. from Glass, G.B., 1981, Coal Deposits of Wyoming, p. 202 (op cit).

Rank of Coal: Subbituminous B  
Minor and Trace Element Content: NA  
Coking Properties: Poor

POTENTIAL USE OF COAL: STEAM COAL

TRANSPORTATION:

	MODE	DISTANCE TO TRANSPORTATION
Existing*	Haul road	5 miles
Being Developed	None	_____
Being Planned	Haul road	1 to 5 miles

\* There is minor haul road that presently exists for the small operation in section 33 that goes in a circular manner about 5 miles to the Prospect Point load-out facility.

#### MINEABILITY

Type of Mine: Surface (Truck/Shovel and/or scraper) MAXIMUM Stripping Ratio of 7:1 for coal 4' thick or greater is projected for this tract.

#### ESTIMATED RECOVERY:

Based on current practice in the Jim Bridger coal field, a recovery factor of 85% is typical

ESTIMATED ANNUAL PRODUCTION: 500,000 tons at full capacity

ESTIMATED MINE LIFE: 40 years

ESTIMATED SURFACE ACRES TO BE MINED PER YEAR: 30

Active, Inactive, and Abandoned Mines or Leases in Tract Vicinity:  
Jim Bridger Mine - Active

#### MARKETABILITY

Good Market potential, plus minimal transportation, make the coals of the Point-of-Rocks Tract competitive.



#### REFERENCES

Dames and Moore, 1979, Coal Resource Occurrence and Coal Development Potential Maps of the Point of Rocks Quadrangle, Sweetwater County, Wyoming: U.S. Geological Survey Open-File Report 79-131.

Dames and Moore, 1979, Coal Resource Occurrence and Coal Development Potential Maps of the Southeast Quarter of the Superior 15-minute Quadrangle; Sweetwater County, Wyoming: U.S. Geological Survey Open-File Report 79-129.

Glass, G.B., 1981, Coal Deposits of Wyoming, in Wyoming Geol. Assoc. Guidebook, 32nd Annual Field Conf.: p. 181-236.

(See Coal Quality footnotes)

# THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rock

State: Wyoming

Leasing/Development Scenario: Mine Addition;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	EMI	Data Rel. *	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
<b>AIR QUALITY</b>									
<u>Air Quality Areas</u>									
PSD		Class II	0	0	0	0	Good	None	Same as Leavitt Hills existing PSD permit. End results would be an extension of 30 years over life of mine impacts with no violation of amount of ambient air standards. Since no significant impact has been identified, the area's Class II rating would not be affected. The closest Class I area is the Bridger Wilderness north of the tract, and the closest proposed areas are Scab Creek and Popo Agie areas adjacent to the Bridger Wilderness area. Rock Springs is an AQMA and the trona development area northwest of Green River is an NA.
Class I PSD Areas			0	0	0	0	Good	None	
Air Quality Maintenance Areas (AQMA)			0	0	0	0	Good	None	
Nonattainment Areas (NA)			0	0	0	0	Good	None	
<u>Sensitive Receptors</u>			0	0	0	0	Good	None	Wilderness and wilderness study areas are north of the tract, and would not be affected by this action. A wildlife refuge is located a considerable distance west, and the Wind River Indian Reservation is a considerable distance northeast.
<u>Total Suspended Particulates (TSP)</u>		18 ug/m <sup>3</sup>	0	0	0	0	Fair	None	The normal Sublette Air Basin background for TSP is 18 ug/m <sup>3</sup> ; therefore, no violations of TSP standards are anticipated. Rock Springs data for long-term trends of SO <sub>2</sub> and NO <sub>2</sub> are given, and less could be anticipated in the tract area. CO and Pb emissions are anticipated from vehicles in the area, but no reliable data for these pollutants are available.
<u>Sulfur Dioxide (SO<sub>2</sub>)</u>		2 ug/m <sup>3</sup>	No Impact				Fair	None	
<u>Nitrogen Dioxide (NO<sub>2</sub>)</u>		25 ug/m <sup>3</sup>	No Impact				Fair	None	
<u>Carbon Monoxide (CO)</u>		None	Slight increases in emissions.				Poor	None	
<u>Lead (Pb)</u>		None	Slight increases in emissions.				Poor	None	
<u>Photochemical Oxidants (O<sub>3</sub>)</u>		Not available	No Impact				Poor	None	Not applicable.
<u>Air Quality Related Values</u>		Wyoming Health and Safety Commission Standards:	No violations anticipated				Good	None	
		SO <sub>2</sub> - 3.0 ppm							
		CO - 30.0 ppm							
		O <sub>3</sub> - 0.1 ppm							
		NO <sub>2</sub> - 3.0 ppm							
<u>Visibility (Rock Springs Airport)</u>		See Table 1	No Impact				Good	None	Not applicable.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	PHL	Data Rel. *	Irreversible and Irretrievable Commitments	Comments (Context and Proposed Mitigation)
<u>AIR QUALITY</u>									
<u>Air Quality Areas</u>									
PSD		Class II					Good	None	Same as Llewellyn Hills existing PSD permit. End results would be an extension of 30 years.
Class I PSD Areas		0		NA			Good	None	Similar impacts in starting in 1992 after the Llewellyn Hills Ends production.
Air Quality Maintenance Areas (AQMA)		0		NA			Good	None	There would have to be a new PSD permit issued, however, no violations of ambient air standards are anticipated.
Nonattainment Areas (NA)		0		NA			Good	None	Since no significant impact has been identified, the area's Class II rating would not be affected. The closest Class I area is the Bridger Wilderness north of the tract, and the closest proposed areas are Scab Creek and Pope Agie areas adjacent to the Bridger Wilderness area. Rock Springs is an AQMA and the trona development area northwest of Green is an NA.
<u>Sensitive Receptors</u>		0		NA			Good	None	Wilderness and wilderness study areas are north of the tract, and would not be affected by this action. A wildlife refuge is located a considerable distance west, and the Wind River Indian Reservation is a considerable distance northeast.
Total Suspended Particulates (TSP)		18 ug/m <sup>3</sup>	0	0	0	0	Fair	None	The normal Sublette Air Basin background for TSP is 18 ug/m <sup>3</sup> ; therefore, no violations of TSP standards are anticipated. Rock Springs data for long-term trends of SO <sub>2</sub> and NO <sub>2</sub> are given, and less could be anticipated in the tract area. CO and Pb emissions are anticipated from vehicles in the area, but no reliable data for these pollutants are available.
Sulfur Dioxide (SO <sub>2</sub> )		2 ug/m <sup>3</sup>	No Impact				Fair	None	
Nitrogen Dioxide (NO <sub>2</sub> )		25 ug/m <sup>3</sup>	No Impact				Fair	None	
Carbon Monoxide (CO)		None	Slight increases in emissions.				Poor	None	
Lead (Pb)		None	Slight increases in emissions.				Poor	None	
Photochemical Oxidants (O <sub>3</sub> )		Not available	No Impact				Poor	None	
<u>Air Quality Related Values</u>		Wyoming Health and Safety Commission Standards:	No violations anticipated				Good	None	Not applicable.
		SO <sub>2</sub> - 5.0 ppm CO - 30.0 ppm O <sub>3</sub> - 0.1 ppm NO <sub>2</sub> - 5.0 ppm							
Visibility (Rock Springs Airport)		See Table 1	No Impact				Good	None	Not applicable.

\* Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 11% or less.

THE SITE SPECIFIC ANALYSIS

Project Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine  
Surface Mining

Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	EML	Data Rel. *	Irreversible and Irretrievable Commitments	Comments (Context and Proposed Mitigation)
CLIMATE									
<u>Temperature</u>		See Table 2		No Impact			Good	None	Not applicable.
<u>Growing Season</u>		163 day average		No Impact			Good	None	Not applicable.
<u>Airflow Patterns and Wind</u>		See Figures 1, 2, 3, 4, 5, and 6; Table 3		No Impact			Good	None	Not applicable.
<u>Precipitation</u>		See Table 2		No Impact			Good	None	Not applicable.
<u>Evapotranspiration</u>		See Table 4		No Impact			Good	None	Not applicable.
<u>Atmospheric Stability</u>		See Table 5		No Impact			Good	None	Not applicable.
<u>Dispersion Potential</u>		Fair to Moderate		No Impact			Good	None	Not applicable.

\* Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

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THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition  
Surface Mining

Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1993	2000	EML	Date Rel. *	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
CLIMATE									
<u>Temperature</u>		See Table 2		No Impact			Good	None	Not applicable.
<u>Growing Season</u>		163 day average		No Impact			Good	None	Not applicable.
<u>Airflow Patterns and Wind</u>		See Figures 1, 2, 3, 4, 5, and 6; Table 3		No Impact			Good	None	Not applicable.
<u>Precipitation</u>		See Table 2		No Impact			Good	None	Not applicable.
<u>Evapotranspiration</u>		See Table 4		No Impact			Good	None	Not applicable.
<u>Atmospheric Stability</u>		See Table 5		No Impact			Good	None	Not applicable.
<u>Dispersion Potential</u>		Fair to Moderate		No Impact			Good	None	Not applicable.

\* Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1983)	1992	1995	2000	EML	Data Rel.*	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
<b>GEOLOGY</b>									
<u>Topography</u>		Terrain is slightly undulating with greater relief along ridges. Slope averages 3 to 5%.	3-5% slope			<4%:1L	Good		Mine would be returned to approximate contour with highwall regraded to a slope less than 4%:1L. No significant impact.
<u>Hydrologic Patterns</u>		Surface drainage is generally eastward into Deadman Wash, a tributary of Bitter Creek.	Minor Impact				Good		Post mining contours would be returned to the approximate original contours and drainage patterns. No significant impacts in the long term.
<u>Paleontology</u>	As per standard coal lease stipulations the lessee shall contact the BLM prior to undertaking surface disturbance activities to determine whether the authorized officer will require a paleontological appraisal.	A survey for the Leucite Hills Mine indicated vertebrate remains in the lower 50 feet of the Almond Formation. The survey report indicated that these faunas were paleontologically significant (Leucite Hills Mining and Reclamation Plan)	If Lower 50 feet of the Almond is removed, a significant vertebrate fauna may be destroyed.				Good	Potential loss of the paleontological record.	If significant fossils are discovered, adequate time and support must be provided to remove samples for preservation and study.
		Invertebrate fossils exist in the uplift, but no known locations occur within the tract.		0	0	0	0		
<u>Geologic Hazards</u>		None	No known hazards.				Good		
<u>Potential for Other Minerals</u>		Oil and Gas - KUSA in tract area (see map 3 of the Tract Profile)	No Impact				Good		Coal production formations are above potential hydrocarbon-bearing formations. Extraction of one resource would not destroy the other resource.

\*Data reliability: Good, 87-100% reliable; Fair, 34-86% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1993	2000	REL	Data Rel. <sup>9</sup>	Irreversible and Irretrievable Commitments	Comments (Context and Proposed Mitigation)
<b>GEOLOGY</b>									
<u>Topography</u>		Terrain is slightly undulating with greater relief along ridges. Slope averages 3 to 5%.	3-5% slope			<4H:1L	Good		Mine would be returned to approximate contour with highwall regraded to a slope less than 4H:1L. No significant impact.
<u>Hydrologic Patterns</u>		Surface drainage is generally eastward into Deadman Wash, a tributary of Bitter Creek.	Minor Impact				Good		Post mining contours would be returned to the approximate original contours and drainage patterns. No significant impacts in the long term.
<u>Paleontology</u>	As per standard coal lease stipulations the Lessee shall contact the BLM prior to undertaking surface disturbance activities to determine whether the authorized officer will require a paleontological appraisal.	A survey for the Leucite Hills Mine indicated vertebrate remains in the lower 50 feet of the Almond Formation. The survey report indicated that these faunas were paleontologically significant (Leucite Hills Mining and Reclamation Plan)	If lower 50 feet of the Almond is removed, a significant vertebrate fauna may be destroyed.				Good	Potential loss of the paleontological record.	If significant fossils are discovered, adequate time and support must be provided to remove fossils for preservation.
		Invertebrate fossils exist in the uplift, but no known locations occur within the tract.	0	0	0	0			
<u>Geologic Hazards</u>		None	No known hazards.				Good		
<u>Potential for Other Minerals</u>		Oil and Gas - C&S in tract area (see Map 3 of Tract Profile)	No Impact				Good		Coal producing formations are above potential hydrocarbon-bearing formation. Extraction of one resource will destroy the other resource.

<sup>9</sup>Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.



## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	EMI	Data Rel.*	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
<b>SOILS</b>									
<u>Erosion Potential</u>	Mitigation as developed in mine reclamation plan will be followed.	See Mapping Unit descriptions attached.	Impacts to units as they are disturbed.				Good		Impacts would be analyzed and mitigated in the mine reclamation plan which is developed after a lease is issued.
<u>Wind</u>							Fair	Soils lost to erosion would be irretrievable.	Soil loss could be expected due to wind erosion on disturbed areas.
<u>Water</u>							Fair		
<u>Wind Erosion Losses in Tons/Year</u>		Not available.							Due to complete change of soil character by mining, this cannot be determined prior to mine plan development and testing which is past leasing.
<u>Chemical Limitations</u>		Not available.							
<u>Physical Limitations</u>		11% of the area (surface) is classified as rock outcrop.					Fair		This would have an impact on reclamation; however, cannot be addressed due to lack of information until mine plan development.
<u>Physical Profile</u>		61% of area is made up of shallow soils; 26% of area is made up of moderately deep to deep soils. See Table 6.	Impacts to physical character of soil cannot be determined at this time.				Good		Due to complete change of soil character by mining, this cannot be determined prior to mine plan development and soil testing associated with past leasing testing.
<u>Suitability as Plant Growth Media</u>	Mitigation will be determined for post leasing and premining in mine plan.	Not available.	Impacts would occur during and after EML.				Good		Post mining suitability of soil material as plant growth media would be addressed through soil testing and analysis in the mine plan subject to state DEQ review and USM review.
<u>Availability of Plant Growth Media</u>		Not available.					Poor		
<u>Occurrence of Toxic Elements</u>		Unknown					Poor		Toxic elements would be identified at premining stage by overburden testing and surface soil testing for the mine plan.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1993	2000	EHL	Data Rel.*	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
<u>SOILS</u>									
<u>Erosion Potential</u>	Follow mitigation as developed in mine reclamation plan.	See Mapping Unit descrip- tions attached.	Impacts to units as they are disturbed.				Good		Impacts would be analysed and mitigated in the mine reclamation plan which is developed after a lease is issued.
Wind							Fair	Soil lost to erosion would be irrecoverable.	Soil loss could be expected due to wind erosion on disturbed areas.
Water							Fair		
Wind Erosion Losses in Tons/Year		Not available.							Due to complete change of soil character by mining, this cannot be determined prior to mine plan development and testing which is past leasing.
<u>Chemical Limitations</u>		Not available.							This would have an impact on reclamation; however, cannot be addressed due to lack of information until mine plan development.
<u>Physical Limitations</u>		8% of the area (surface) is classified as rock outcrop.					Fair		
<u>Physical Profile</u>		41% of area is made up of shallow soils; 20% of area is made up of moderately deep to deep soils. See Table 6.	Impacts to physical character of soil cannot be determined at this time.				Good		Due to complete change of soil character by mining, this cannot be determined prior to mine plan development and soil testing associated with post leasing testing.
<u>Suitability as Plant Growth Media</u>	Mitigation will be determined for post leasing and premining in mine plan.	Not available.	Impact would occur during and after EHL.				Good		Post mining suitability of soil material as plant growth media would be addressed through soil testing and analysis in the mine plan subject to state DEQ review and USM review.
<u>Availability of Plant Growth Media</u>		Not available.					Poor		
<u>Occurrence of Toxic Elements</u>		Unknown					Poor		Toxic elements would be identified prior to mining by overburden testing and surface soil testing for the mine plan.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Mining/Development Scenario: New Mine  
Surface Mining

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	EML	Date Rel. *	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
WATER RESOURCES									
Surface Water									
Types of Occurrence									
Quantity		3.1 cfs/ai <sup>2</sup>	No change due to proposed action.				Good		Average value over a 15-year period of peak annual flows.
Quality		Fair water quality	Minor Impact				Fair		Only minor changes would occur due to increased sediment loads downstream.
Salinity of Receiving Waters		Not quantified					Fair		
Importance to Livestock and Wildlife		Not quantified					Good		Quantity of water consumed is not known but water is of fair quality.
Importance to People		Not applicable	NA				Good		
Erosion and Sedimentation	Surface disturbance and crossings of channels are subject to RLM stipulations and procedures.	Values range from 0.079 to 4.54 tons per acre per year.	Minor Impact				Good		Disturbance would slightly increase sediment and erosion.
Importance to Industry		Not applicable							Not usable for this purpose due to lack of abundant water and poor water quality.
Ground Water									
Quantity		a. Ericson 10-200 gpm	No Impact						Mining would be above Ericson formation.
		b. Almond 10-100 gpm	Minor Impact						Some minor impact may result due to mining.
Quality		a. Ericson: water used for drinking in Superior (1,365 TDS)	No Impact						Mining coal could reduce water quality.
		b. Almond 1,600 TDS	No Impact						
Importance to Livestock and Wildlife		Not quantified	No Impact						Water is of good quality for livestock.
Importance to People		Drinking water	No Impact						Water is of poor quality.
Erosion and Sedimentation		Not applicable							
Importance to Industry		No present use	No Impact						

Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition  
Surface Mining

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	EML	Data Rel. *	Irreversible and Irretrievable Commitments	Comments (Context and Proposed Mitigation)
WATER RESOURCES									
Surface Water									
Types of Occurrence									
Quantity		3.1 cfs/mi <sup>2</sup>	No change due to proposed action.				Good		Average value over a 15-year period of peak annual flows.
Quality		Fair water quality	Minor Impact				Fair		Only minor changes will occur due to increased sediment loads downstream.
Salinity of Receiving Waters		Not quantified					Fair		
Importance to Livestock and Wildlife		Not quantified					Good		Quantity of water consumed is not known but water is of fair quality.
Importance to People		Not applicable	NA				Good		
Erosion and Sedimentation	Surface disturbance and crossings of channels are subject to BLM stipulations and procedures.	Values range from 0.079 to 4.54 tons per acre per year.	Minor Impact				Good		Disturbance would slightly increase sediment and erosion.
Importance to Industry		Not applicable							Not usable for this purpose due to lack of abundant water and poor water quality.
Ground Water									
Quantity		a. Ericson 10-200 gpm	No Impact						Mining would be above Ericson formation.
		b. Almond 10-100 gpm	Minor Impact						Some minor impact may result due to mining.
Quality		a. Ericson: water used for drinking in Superior (1,365 TDS)	No Impact						Mining coal could reduce water quality.
		b. Almond 1,000 TDS	No Impact						
Importance to Livestock and Wildlife		Not quantified	No Impact						Water is of good quality for livestock.
Importance to People		Drinking water	No Impact						Water is of poor quality.
Erosion and Sedimentation		Not applicable							
Importance to Industry		No present use	No Impact						

\*Data reliability: Good, 97-100% reliable; Fair, 74-96% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine;  
Surface Mining

## Anticipated Impact

<u>Resource Element</u>	<u>Committed Mitigation</u>	<u>Base Line (1985)</u>	<u>1992</u>	<u>1995</u>	<u>2000</u>	<u>FML</u>	<u>Data Rel.*</u>	<u>Irreversible and Irretrievable Commitments</u>	<u>Comments (Context and Proposed Mitigation)</u>
<u>VEGETATION</u>									
<u>Types</u> (in acres)									
Sagebrush-Grass		See Table 7	0	-245	-653	-2,450	Fair		Removal of vegetation in this area could be a potentially significant impact. (See Reclamation section.) Topsoil should be replaced and the area reseeded when possible as soon as surface-disturbing activities have been completed.
Saltbush-Grass		See							
<u>Species Diversity</u>									
		See Table 8						Permanent loss of some native species.	
<u>Use</u>									
		Livestock grazing; wild horse and wildlife habitat	0	-19 AUMs	-50	-189	Fair		
<u>Season of Use</u>									
		Yearlong for cattle; mostly winter for sheep							
<u>Cover</u>									
Vegetal		17%					Fair		
<u>Threatened and Endangered Plants</u>									
		None identified					Good		
<u>Riparian</u>									
		None					Good		

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

# THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	END	Data Rel.*	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
VEGETATION									
<u>Types</u> (in acres)									
Sagebrush-Grass		See Table	-569	-814	-1,222	-3,019	Fair		Removal of vegetation in this area could be a potentially significant impact. (See Reclamation section.) Topsoil should be replaced and the area reseeded when possible as soon as surface-disturbing activities have been completed.
Saltbush-Grass		7	- 81	-116	- 175	- 431			
<u>Species Diversity</u>									
		See Table						Permanent loss of some native species.	
<u>Use</u>									
		Livestock grazing; wild horse and wildlife habitat	-43 AUMs	-62	- 93	- 230	Fair		
<u>Season of Use</u>									
		Yearlong for cattle; mostly winter for sheep							
<u>Cover</u>									
Vegetal		17%					Fair		
<u>Threatened and Endangered Plants</u>									
		None identified					Good		
<u>Riparian</u>									
		None					Good		

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Mining/Development Scenario: Mine Addition;  
Surface Mining

		Anticipated Impact				Irreversible and Inevitable Commitments		Comments (Context and Proposed Mitigation)	
Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	ENL	Data Rel.*		
WILDLIFE									
Habitat (Acres Disturbed)			650	930	1,397	3,450		Habitat replacement and enhancement measures off-tract should be considered.	
Populations (Density Per Square Mile or Number of Nests)									
Pronghorn		3.0/mi <sup>2</sup> - yearly average (74 head)	Few losses expected due to animal-vehicle collisions.				Good	None	
Mule Deer		0.4/mi <sup>2</sup> yearlong average (11-12 head)	Few losses expected due to animal-vehicle collisions.				Good	None	
Elk		Occasional Use (not resident)	0	0	0	0	Good	None	
Sage Grouse		No known strutting areas	No Impact				Good	None	
Chukar		1.0/mi <sup>2</sup> - yearly average (20-24 birds, flock size)					Good	None	
Golden Eagle	Coal Unsuitability Criteria No. 11 and No. 14 were applied, and it was determined a buffer zone would be established.	1 nest in Section 32, T. 21 N., R. 101 W.; 1 in Section 8, T. 20 N., R. 101 W. (Buffer also contains two other nests in Section 17, T. 21 N., R. 101 W.)	0	0	0	0	Good	None	Establishment of buffer zones for raptors in the area has been protested by energy companies in the past; thus, establishment of buffer zones could be controversial.
Prairie Falcon	Coal Unsuitability Criteria No. 13 and No. 14 were applied, and it was determined buffer zones would be established.	One nest in Section 7, T. 20 N., R. 101 W.; one nest in Section 8, T. 20 N., R. 101 W.; (Buffer also contains 1 additional prairie falcon nest and 3 golden eagle nests.) Two nests in Section 27, T. 20 N., R. 101 W., (Buffer also contains 7 additional prairie falcon nests and 4 golden eagle nests.)	0	0	0	0	Good	None	Establishment of buffer zones for raptors in the area has been protested by energy companies in the past; thus, establishment of buffer zones could be controversial.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.



THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming.

Leasing/Development Scenario: Mine Addition;  
Surface Mining

Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	EML	Data Rel. <sup>a</sup>	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
Coyotes		Common	No significant impact				Fair	None	
Bobcats		Common	No significant impact				Fair	None	
Cottontail Rabbits		Common	Fewer would be hunted, but more losses to vehicle-animal collisions.				Fair	None	
Small mammals, birds, reptiles, and amphibians		See Summary lists in Bio Systems Analysis, Inc., 1980, and BLM, 1981 inventories for Salt Wells/Pilot Butte planning areas.	No significant impact				Good	None	
Threatened and Endangered Species	TSE species clearance on public lands will be required prior to surface disturbance. Prairie dog surveys per Instruction Memorandum WY-04-80-59.	None identified	0	0	0	0	Good	None	TSE "may affect" consultation if necessary.
Wild Horses		0.5 - 0.6/mi <sup>2</sup> (herd of 12-15 animals.)	0	0	0	0	Good	None	Management Unit contains a 1982 inventory of wild horses. Manage- ment level is set at wild horses will be removed from this area per District wild horse management plan.

<sup>a</sup>Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Mining/Development Scenario: New Mine;  
Surface Mining

Resource Element	Committed Mitigation	Anticipated Impact				Data Rel.*	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)	
		Base Line (1985)	1992	1995	2000				ENL
WILDLIFE									
Habitat (Acres Disturbed)			0	280	747	2,800	Fair		
Populations (Density Per Square Mile or Number of Nests)									
Pronghorn		3.0/mi <sup>2</sup> - yearly average (74 head)	Few losses expected due to animal-vehicle collisions.				Good	None	
Mule Deer		0.4/mi <sup>2</sup> yearlong average (11-12 head)	Few losses expected due to animal-vehicle collisions.				Good	None	
Elk		Occasional Use (not resident)	0	0	0	0	Good	None	
Sage Grouse		No known strutting areas	No Impact				Good	None	
Chukar		1.0/mi <sup>2</sup> - yearly average (20-24 birds, flock size)					Good	None	
Golden Eagle	Coal Unsuitability Criteria No. 11 and No. 14 were applied, and it was determined a buffer zone would be established.	1 nest in Section 32, T. 21 N., R. 101 W.; 1 in Section 8, T. 20 N., R. 101 W. (Buffer also contains two other nests in Section 17, T. 21 N., R. 101 W.)	0	0	0	0	Good	None	Establishment of buffer zones for raptors in the area has been protested by energy companies in the past; thus, establishment of buffer zones could be controversial.
Prairie Falcon	Coal Unsuitability Criteria No. 13 and No. 14 were applied, and it was determined buffer zones would be established.	One nest in Section 7, T. 20 N., R. 101 W.; one nest in Section 8, T. 20 N., R. 101 W.; (Buffer also contains 1 additional prairie falcon nest and 3 golden eagle nests.) Two nests in Section 27, T. 20 N., R. 101 W., (Buffer also contains 7 additional prairie falcon nests and 4 golden eagle nests.)	0	0	0	0	Good	None	Establishment of buffer zones for raptors in the area has been protested by energy companies in the past; thus, establishment of buffer zones could be controversial.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992 1995 2000 FMT				Data Rel.*	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
Coyotes		Common	No significant impact				Fair	None	
Bobcats		Common	No significant impact				Fair	None	
Cottontail Rabbits		Common	Fewer would be hunted, but more losses to vehicle-animal collisions.				Fair	None	
Small mammals, birds, reptiles, and amphibians		See Summary lists in Bio Systems Analysis, Inc., 1981, and BLM, 1981 inventories for Salt Wells/Pilot Butte planning areas.	No significant impact				Good	None	
Threatened and Endangered Species	TSE species clearance on public lands will be required prior to surface disturbance. Prairie dog surveys per Instruction Memorandum WY-04-80-59.	None identified	0	0	0	0	Good	None	TSE "may affect" consultation if necessary.
Wild Horses		0.5 - 0.6/mi <sup>2</sup> (herd of 12-15 animals.)	0	0	0	0	Good	None	Management Unit has a 1982 inventory of horses. Management level is set at 150; wild horses will be removed from this area per District wild horse management plan.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line					Data	Irreversible and	Comments
		(1985)	1992	1995	2000	End	Rel.*	Irrecoverable Commitments	(Context and Proposed Mitigation)
CULTURAL									
<u>Historic Sites</u>	Class III inventory must be completed prior to mining per standard coal lease stipulation. Appropriate mitigation measures (seep, test, excavate, etc.) will be developed subsequent to the inventory.	Scattered evidence of historic livestock herding activity, 1880's wagon road that may be alternate route of Point of Rocks/South Pass City Stage Road.	Artifacts and road would be destroyed, but a record of their presence would be preserved.				Fair		Major impacts on historic stockherding camps are not anticipated after standard lease stipulations are applied. The significance of the wagon road has yet to be determined.
<u>Prehistoric Sites</u>	Class III inventory must be completed prior to surface disturbing activity per standard coal lease stipulation. Appropriate mitigation (mapping, surface collecting, major excavation of areas with features, faunal remains, and other significant deposits, etc.) will be developed subsequent to the inventory.	National Register quality sites are known to exist in an area of high cultural potential in E. Section 6 and W. Section 3 (see Map 2) that may fall within the area proposed for disturbance.	Portions of significant sites may be destroyed by activities and facilities associated with mining.				Fair	Valuable archeological record could be lost.	All known significant sites are outside the pit area, and adverse effects could be avoided by proper routing and siting of ancillary facilities.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

# THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line	1992	1995	2000	EMI	Data Rel.*	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
		(1985)						Commitments	
CULTURAL									
<u>Historic Sites</u>	Class III inventory must be completed prior to mining per standard coal lease stipulation. Appropriate mitigation measures (map, test, excavate, etc.) will be developed subsequent to the inventory.	Scattered evidence of historic livestock herding activity, 1880's wagon road that may be alternate route of Point of Rocks/South Pass City Stage Road.	Artifacts and road would be destroyed, but a record of their presence would be preserved.				Fair		Major impacts on historic stockherding camps are not anticipated after standard lease stipulations are applied. The significance of the wagon road has yet to be determined.
<u>Prehistoric Sites</u>	Class III inventory must be completed prior to surface disturbing activity per standard coal lease stipulation. Appropriate mitigation (mapping, surface collecting, major excavation of areas with features, faunal remains, and other significant deposits, etc.) will be developed subsequent to the inventory.	National Register quality sites are known to exist in an area of high cultural potential in E. Section 6 and W. Section 5 (see Map 2) that may fall within the area proposed for disturbance.	Portions of significant sites may be destroyed by activities and facilities associated with mining.				Fair	Valuable archeological record could be lost.	All known significant sites are outside the pit area, and adverse effects could be avoided by proper routing and siting of ancillary facilities.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

# THE SITE SPECIFIC ANALYSIS

Project Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	ENL	Data Rel.*	Irreversible and Irretrievable Commitments	Comments (Context and Proposed Mitigation)
<b>RECREATION</b>									
<u>Hunting</u>		Not quantified	0	0	0	0	Good	None	Recreation opportunities in the area are very limited. The impact of mine activity would be insignificant.
<u>Hiking</u>		Not quantified	0	0	0	0	Good	None	
<u>Rockhounding</u>		Not quantified	0	0	0	0	Good	None	
<u>ORV Use</u>		Not quantified	0	0	0	0	Good	None	There are no land use planning stipulations to affect recreation use in the area.
<b>WILDERNESS</b>									
			0	0	0	0	Good	None	This area is not located within a wilderness study area or near a WSA. The impacts from the mine would be insignificant.
<b>VRM CLASS</b>									
	Class IV		0	0	0	0	Good	None	This area is located within a VRM Class IV. Added intrusions to the current intrusions would not affect the VRM Class rating.

Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine:  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	EMI	Data Rel.*	Irreversible and Irretrievable Commitments	Comments (Context and Proposed Mitigation)
RECREATION									
<u>Hunting</u>		Not quantified	0	0	0	0	Good	None	Recreation opportunities in the area are very limited. The impact of mine activity would be insignificant.
<u>Hiking</u>		Not quantified	0	0	0	0	Good	None	
<u>Rockhounding</u>		Not quantified	0	0	0	0	Good	None	
<u>ORV Use</u>		Not quantified	0	0	0	0	Good	None	There are no land use planning stipulations to affect recreation use in the area.
WILDERNESS									
			0	0	0	0	Good	None	This area is not located within a wilderness study area or near a WSA. The impacts from the mine would be insignificant.
VRM CLASS									
		Class IV	0	0	0	0	Good	None	This area is located within a VRM Class IV. Added intrusions to the current intrusions would not affect the VRM Class rating.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.



THE SITE SPECIFIC ANALYSIS

Project Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine;  
Surface Mining

Anticipated Impact

Resource Element	Committed Mitigation	Base Line	1992	1995	2000	EHL	Data Rel*	Irreversible and Irretrievable	Comments
		(1985)						Commitments	(Context and Proposed Mitigation)
TRANSPORTATION									
Product	Standard BLM rehabilitation stipulations would apply.		Haul road already constructed.				Good	Extensions of existing facilities would accommodate the mining of this tract.	
Employee									
Average Daily Traffic (ADT)									
Without Proposed Action*									
I-80 at East Rock Springs	9,555 ADT		11,370	12,150	13,450	19,155			
I-80 at Saxter Road	8,855		10,615	11,375	12,630	18,175			
I-80 at Superior	8,650		10,395	11,145	12,390	17,875			
I-80 at Point of Rocks	7,445		8,865	9,470	10,485	14,945			
With Proposed Action									
I-80 at East Rock Springs	9,555 ADT		11,418	12,198	13,498	19,203			
I-80 at Saxter Road	8,855		10,663	11,423	12,678	18,223			
I-80 at Superior	8,650		10,443	11,193	12,438	17,923			
I-80 at Point of Rocks	7,445		8,917	9,522	10,537	14,997			

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE-SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line	1992	1995	2000	EHL	Data Rel.*	Irreversible and	Comments
		(1985)						Unrecoverable	(Content and
Proposed Mitigation)									
LAND USES									
Rights-of-Way (ROWs)	Criterion No. 2 - Rights-of-Way and Easements - was applied, and it was determined that ROWs are acceptable for coal development, subject to valid existing rights and negotiations for relocation, if necessary; appropriate stipulations, and consistency with current planning and management decisions.	W-71196 Road 150 ft. RME W-60654 Powerline Idaho Power & Light (500 kv) W-36599-Powerline PP&L W-30009 (SLUP) PP&L -Air Monitoring W-34561-Pipeline PP&L (water) 36" Dia. W-31007-Pipeline-Staufffer W-45531-Pipeline-Staufffer W-64308-Pipeline-CIG W-0183806-NAT Site-Wyoming Highway Department W-70865-Pipeline (Trailblazer) CIG-36" Dia. W-69996-Pipeline-CIG-24" Dia. W-80325-PP&L-Irrigation Site					Good	Prior to placing this tract up for lease, it is recommended that comprehensive report be prepared as to the feasibility of moving or mining around these facilities. Four facilities would be difficult to move. The Idaho Power & Light line (W-60654) and Pacific Power & Light waterline (W-34561) are within the area proposed for strip mining; Trailblazer (W-70865); and the CIG gas line (W-69996). Negotiations for possible relocation of conflicting ROWs should be addressed in the mining and reclamation plan.	
Land Uses		Subsurface coal mining in this area is consistent with BLM MFP Decisions.						Good	
Oil and Gas	MFP decision to defer coal leasing in RGSs unless or until it was determined that surface mining methods would not interfere with economic recovery of the oil and gas resources or that such conflicts can be mitigated.	3 RGS areas (see Nap 3 of Tract Profile)	Surface use impact where stripping and producing wells overlap.					Good	MMS has determined that these conflicts can be mitigated when mining plans are written and when new leases or wells are proposed where mining disturbance is occurring (pers. comm. September 3, 1992). Conflicts would be mitigated under existing statutory and regulatory authority.
Ownership		2037.96 Fed.(42%) 4876.31 Total	0	0	0	0	Good		Not applicable

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE SPECIFIC ANALYSIS

Site Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	EML	Data Rel*	Irreversible and Irretrievable Commitments	Comments (Context and Proposed Mitigation)
TRANSPORTATION									
Product	Standard BLM rehabilitation stipulations would apply.		Haul road already constructed.				Good		Extensions of existing facilities would accommodate the mining of this tract.
Employee									
Average Daily Traffic (ADT)									
Without Proposed Action*									
I-80 at East Rock Springs		9,555 ADT	11,370	12,150	13,450	19,155			
I-80 at Baxter Road		8,855	10,615	11,375	12,630	18,175			
I-80 at Superior		8,650	10,395	11,145	12,390	17,875			
I-80 at Point of Rocks		7,445	8,865	9,470	10,485	14,945			
With Proposed Action									
I-80 at East Rock Springs		9,555 ADT	11,418	12,198	13,498	19,203			
I-80 at Baxter Road		8,855	10,663	11,423	12,678	18,223			
I-80 at Superior		8,650	10,443	11,193	12,438	17,923			
I-80 at Point of Rocks		7,445	8,917	9,522	10,537	14,997			

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

## THE SITE-SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	EML	Data Rel. <sup>a</sup>	Irreversible and Irretrievable Commitments	Comments (Context and Proposed Mitigation)
<b>LAND USES</b>									
<u>Rights-of-Way (ROWs)</u>	Criterion No. 2 - Rights-of-Way and Easements - was applied, and it was determined that ROWs are acceptable for coal development, subject to valid existing rights and negotiations for relocation, if necessary; appropriate stipulations, and consistency with current planning and management decisions.		W-71196 Road 150 ft. RME W-80664 Powerline Idaho Power & Light (500 kv) W-36599-Powerline PP&L W-30009 (SLUP) PP&L -Air Monitoring W-34561-Pipeline PP&L (water) 36" Dia. W-51007-Pipeline-Stauffer W-45531-Pipeline-Stauffer W-64308-Pipeline-CIG W-0183806-MAT Site-Wyoming Highway Department W-70865-Pipeline (Trailblazer) CIG-36" Dia. W-69996-Pipeline-CIG-24" Dia. W-80125-PP&L-Irrigation Site					Good	Prior to placing this tract up for lease, it is recommended that comprehensive report be prepared as to the feasibility of moving or mining around these facilities. Four facilities would be difficult to move. The Idaho Power & Light line (W-40664) and Pacific Power & Light waterline (W-34561) are within the area proposed for strip mining; Trailblazer (W-70865); and the CIG gas line (W-69996). Negotiations for possible relocation of conflicting ROWs should be addressed in the mining and reclamation plan.
<u>Land Uses</u>		Subsurface coal mining in this area is consistent with BLM NFP Decisions.						Good	
<u>Oil and Gas</u>	NFP decision to defer coal leasing in ROWs unless or until it was determined that surface mining methods would not interfere with economic recovery of the oil and gas resources or that such conflicts can be mitigated.	3 ROW areas (see Map 3 of Tract Profile)	Surface use impact where stripping and producing wells overlap.					Good	NMS has determined that these conflicts can be mitigated when mining plans are written and when new leases or wells are proposed where mining disturbance is occurring (pers. comm. September 3, 1982). Conflicts would be mitigated under existing statutory and regulatory authority.
<u>Ownership</u>		2037.96 Fed.(42%) 4876.31 Total	0	0	0	0		Good	Not applicable

<sup>a</sup>Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

### THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition;  
Surface Mining

### Anticipated Impact

<u>Resource Element</u>	<u>Committed Mitigation</u>	<u>Base Line (1985)</u>	<u>1992</u>	<u>1995</u>	<u>2000</u>	<u>EML</u>	<u>Data Rel.*</u>	<u>Irrecoverable and Irretrievable Commitments</u>	<u>Comments (Context and Proposed Mitigation)</u>
<b><u>ECONOMIC</u></b>									
<b><u>Employment</u></b>	None								
Without the Proposed Action		26,115	30,730	32,705	36,000	50,490	Good	None	Total employment would be increased if the tract is mined as an addition to the existing Leucite Hills Mine. The existing employment in the Leucite Hills mine would be extended from 1992 to 2022.
With the Proposed Action		26,115	30,730	32,745	36,040	50,530			
<b><u>Income (\$1,000 of 1980 dollars)</u></b>	None								
Without the Proposed Action		\$03,837	\$92,874	630,978	694,548	974,104	Good	None	Direct wages paid mine employees would increase by \$1,037,480 (1980 dollars) annually from 1993 until 2022.
With the Proposed Action		\$03,837	\$92,874	632,015	695,585	975,141			
<b><u>Population</u></b>									
Without the Proposed Action		51,650	60,775	64,685	71,200	99,860	Good	None	Population would not increase as a direct result of extended employment in the Leucite Hills Mine. The population would increase if the local workforce could not fill the positions that would have been occupied by the workers from the Leucite Hills Mine, when it would have terminated operations in 1992.
With the Proposed Action			School enrollments would remain the same.						Housing requirements would not change as a result of extended employment.
<b><u>Housing</u></b>									
Without the Proposed Action		17,480	20,600	21,925	24,135	28,995	Fair	None	
With the Proposed Action			Housing requirements would remain the same.						
<b><u>School Enrollments</u></b>	None								
Without the Proposed Action		11,295	13,377	14,145	15,570	18,705	Fair	None	School enrollments would not increase as a direct result of extended employment in the Leucite Hills Mine. School enrollments would increase if additional population immigration results from employment in other sectors that would have been filled by Leucite Hills Mine employees had the mine terminated in 1992.
With the Proposed Action			School enrollments from the Leucite Hills Mine would not be affected.						

State: Wyoming

Leasing/Development Scenario: Mine Addition;  
Surface Mining

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Changed in employment and population would not be large enough to result in a major change in park acreage requirements.

Changes in employment and population would not be large enough to result in a major change in water system capacities of the communities.

Changes in employment and population will not be large enough to result in a major change in sewage treatment requirements of the communities.

Ad valorem taxes on coal mined from the tract would increase ad valorem taxes by 2.4 percent in 1993. If additional Federal leasing takes place the effect on taxes in the year 2022 would be expected to be similar to that in 1993 and 1995.

Ad valorem taxes would increase slightly beginning in 1993 to the year 2022.

## THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Mining/Development Scenario: Mine Addition;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	EML	Data Rel.*	Irreversible and Irrecoverable Commitments	Comments (Cost and Proposed Mitigation)
<u>Coal Severance Tax</u> (\$1,000 of 1980 dollars)	None								
Without the Proposed Action		15,797	18,295	18,700	19,142	2,932	Fair	None	Coal severance taxes would increase by 2.4 percent in 1992. If additional federal leasing takes place, and new mines are developed, the effect on taxes in the year 2022 would be expected to be similar to that in 1992 and 1995.
With the Proposed Action			Severance tax would increase by approximately \$239,600.						
<u>Federal Coal Royalties</u> (\$1,000 of 1980 dollars)	None								
Without the Proposed Action		3,679	12,487	13,181	13,884	1,785	Fair	None	Federal royalties would increase by 4.9 percent starting in 1992. If additional federal coal leasing takes place and new mines are developed then the effect on federal royalties in the year 2022 would be similar to that in the year 1992 and 1995.
With the Proposed Action		3,679	13,140	13,834	14,537	2,438			
<u>Sales Tax</u> (\$1,000 of 1980 dollars)	None								
Without the Proposed Action		21,964	25,845	27,507	30,278	42,467	Fair	None	Total sales tax in Sweetwater County would increase slightly.
With the Proposed Action		21,964	25,862	27,524	30,295	42,484			
<u>SOCIAL</u>									
<u>Population Growth Rate</u> (Sweetwater County)	None								
Without the Proposed Action		2.4	2.4	2.1	1.9	1.5	Good	None	Population from direct employment in the Leucite Hills Mine would not change. The total Sweetwater County population growth rate may increase slightly in 1993 due to the possible population immigration from employment in other sectors that is not filled by employees that would have been terminated at the Leucite Hills Mine in 1992.
With the Proposed Action									

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine;  
Surface Mining

Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	ENL	Date Rel.*	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
<b>ECONOMIC</b>									
<u>Employment</u>	None								
Without the Proposed Action		26,115	30,730	32,705	36,000	50,490	Good	None	Development of a new mine would result in 40 new operational employment positions and 35 service sector positions. Total employment in Sweetwater County would increase slightly.
With the Proposed Action		26,115	30,805	32,780	36,075	50,565			(See Table 9 for a breakdown of employment by sector.)
<u>Income (\$1,000 of 1980 dollars)</u>	None								
Without the Proposed Action		503,837	592,874	630,978	694,548	974,104	Good	None	Income in Sweetwater County would increase approximately two million dollars from direct wages and spending in the local economy.
With the Proposed Action		503,837	595,053	633,157	696,727	976,283			(See Table 9 for a breakdown of income by source.)
<u>Population</u>									
Without the Proposed Action		51,650	60,775	64,685	71,200	99,860	Good	None	Population would increase by 22 residents due to direct mine employment and additional secondary employment. The total population of Sweetwater County would increase slightly beginning in 1992.
With the Proposed Action		51,650	61,000	64,910	71,425	100,085			(See Table 10 for a breakdown of population by community.)
<u>Housing</u>									
Without the Proposed Action		17,480	20,600	21,925	24,135	33,850	Fair	None	Total housing requirements in Sweetwater County would increase by 65 units, due to the population increase from direct mine employment and secondary employment.
With the Proposed Action		17,480	20,665	21,990	24,200	33,915			(See Table 10 for a breakdown of housing requirements by community.)
<u>School Enrollments</u>	None								
Without the Proposed Action		11,295	13,290	14,145	15,570	21,840	Fair	None	School enrollments in Sweetwater County School Districts 1 and 2 would increase by 64 students.
With the Proposed Action		11,295	13,354	14,209	15,634	21,906			(See Table 11 for a breakdown of school enrollments by district.)



<u>Hospital (Beds)</u> Without the Proposed Actions	None	124	146	155	171	240	Fair	None	The population increase would not be large to warrant an increase in the number of hospital beds in Sweetwater County.
With the Proposed Actions			Hospital bed requirements would remain the same.						
<u>Park (acres)</u> Without the Proposed Actions	None	471	555	591	650	912	Fair	None	Population increase in Rock Springs would require an additional 3 acres of park land to maintain the existing ratio of population to park acreage.
With the Proposed Actions		471	558	594	653	913			
<u>Water Supply</u> (Capacity in million gallons/day) Without the Proposed Actions	None	18.13	18.15	18.41	18.93	23.04	Fair	None	Domestic water supply capacity would need to increase by 50,000 gallons per day in Rock Springs and Green River to meet the demands from additional population growth.
With the Proposed Actions		18.13	18.20	18.46	18.98	23.09			(See Table 12 for a breakdown of water system capacity requirements.)
<u>Sewage Treatment</u> (Capacity in million gallons/day) Without the Proposed Action	None	6.83	6.84	6.84	7.10	8.80	Fair	None	Sewage treatment plant capacity in Rock Springs would need to increase 20,000 gallons per day to accommodate the additional population.
With the Proposed Action		6.83	6.86	6.86	7.12	8.82			(See Table 12 for a breakdown of sewage treatment capacities by community.)
<u>Ad Valorem Coal Production Tax</u> (\$1,000 of 1980 dollars) Without the Proposed Action	None	10,230	11,848	12,110	12,397	1,899	Fair	None	Ad valorem taxes on coal mined from the tract would increase ad valorem taxes by 2.4 percent in 1993. If leasing takes place the effect on taxes in the year 2022 would be expected to be similar to that in 1993 and 1995.
With the Proposed Action		10,230	11,848	12,410	12,697	2,799			
<u>Ad Valorem Property Tax</u> (\$1,000 of 1980 dollars)	None	64,666	76,000	80,986	89,142	125,025	Fair	None	Ad valorem taxes would increase slightly beginning in 1993 to the year 2022.
Without the Proposed Action		64,666	76,000	81,325	89,470	125,353			
With the Proposed Action									
<u>Coal Severance Tax</u> (\$1,000 of 1980 dollars) Without the Proposed Action	None	15,797	18,295	18,700	19,142	2,932	Fair	None	Coal severance taxes would increase by 2.4 percent in 1992. If additional federal leasing takes place, and new mines are developed, the effect on taxes in the year 2022 would be expected to be similar to that in 1992 and 1995.
With the Proposed Action		15,797	18,758	19,163	19,605	3,395			

Federal Coal Royalties  
(\$1,000 of 1980 dollars)  
Without the Proposed  
Action  
With the Proposed  
Action

None

3,679	12,487	13,181	13,884	1,785	Fair	None
3,679	13,140	13,834	14,537	2,438		

Federal royalty would increase by 4.9 percent starting in 1992. If additional federal coal leasing takes place and new mines are developed then the effect on federal royalties in the year 2022 would be similar to that in the year 1992 and 1995.

Sales Tax  
(\$1,000 of 1980 dollars)  
Without the Proposed  
Action  
With the Proposed  
Action

None

21,964	25,845	27,507	30,278	42,467	Fair	None
21,964	25,941	27,603	30,374	42,563		

Total sales tax in Sweetwater County would increase slightly.

# SOCIAL

Population Growth Rate  
(Sweetwater County)  
Without the Proposed  
Action  
With the Proposed

None

2.4	2.4	2.1	1.9	1.5	Good	None
Population growth rate would not change as a direct result of the addition to the Leucite Hills Mine.						

Increased population from direct and indirect employment would not be large enough to impact the social services of Sweetwater County.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

# THE SITE SPECIFIC ANALYSIS

Site Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Anticipated Impact				Data Reliability	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
		Base Line (1985)	1992	1995	2000	EMI		
ENERGY BALANCE (energy output to input)	None	0	13.27	13.27	13.27	13.27	Good	None

It is estimated that 13.27 British Thermal Units (BTUs) of energy are output as coal for each BTU expended to produce that coal for the existing Leucite Hills Mine. This ratio is not expected to change throughout the life of the mine.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition;  
Surface Mining

Anticipated Impact

Resource Element	Committed Mitigation	Base Line	1992	1995	2000	EML	Data Rel*	Irreversible and Irrecoverable Commitments	Comments
		(1985)							(Consent and Proposed Mitigation)
ENERGY BALANCE (energy output to input)	None	13.27	13.27	13.27	13.27	13.27	Good	None	It is estimated that 13.27 British Thermal Units (BTUs) of energy are output as coal for each BTU expended to produce that coal for the existing Leucite Hills Mine. This ratio is not expected to change throughout the life of the mine.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

# THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition;  
Surface Mining

## Anticipated Impact

		Base Line (1983)				Data Rel.*	Irreversible and Irretrievable Commitments	Comments (Context and Proposed Mitigation)
Resource Element	Committed Mitigation	1992	1995	2000	EML			
<u>NOISE</u>								
<u>Sources</u>		Mining activities, wind, traffic, and agricultural activities.				Fair	None	Traffic and mining activities are not expected to increase; therefore, there would be no new additional sources of noise.
<u>Level</u>		Approximately 78 dB at 500 feet (Green River-Hams Fork Draft EIS)				Fair	None	No significant impact is expected because of lack of sensitive receptors around or near tract. Mine employees would have hearing protective devices.
<u>Impacts on General Population</u>		Normal levels 50 to 55 decibels.		No impact		Good	None	Noise around tract area would affect people seeking recreation opportunities and wildlife near site; however, the impact would be minimal.
<u>Health and Safety Standards</u>		Duration 8 hrs not to exceed 90 decibels (30 CFR 70.511)		No impact		Good	None	Standard MSHA stipulations would mitigate potential impacts.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine;  
Surface Mining

Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	REL	Date Rel.*	Irreversible and Irretrievable Commitments	Comments (Context and Proposed Mitigation)
<b>NOISE</b>									
<u>Sources</u>		Mining activities, wind, traffic, and agricultural activities.					Fair	None	Traffic levels and mining activities are not expected to increase; therefore, there would be no sources of additional noise.
<u>Level</u>		Approximately 78 dB at 500 feet (Green River-Hansa Fork Draft EIS)					Fair	None	No significant impact is expected because there are no sensitive receptors around or near tract. Mine employees would have hearing protective devices.
<u>Impacts on General Population</u>		Normal levels 50 to 55 decibels.	No impact				Good	None	Noise around the tract area would affect people seeking recreation opportunities and wild-life near site; however, the impact would be minimal.
<u>Health and Safety Standards</u>		Duration 8 hrs not to exceed 90 decibels (30 CFR 70.511)	No impact				Good	None	Standard MSHA stipulations would mitigate potential impacts.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

# THE SITE SPECIFIC ANALYSIS

Site Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: Mine Addition;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	EML	Data Rel.#	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
<b>RECLAMATION POTENTIAL</b>									
<u>Potential for Back to Present Use VSC</u>	Mine plan and reclamation plan must be approved by Wyoming Department of Environmental Quality.	100% plants removed. No reclamation.							Reclamation plan must be designed to return area to open range multiple-use lands equal to that prior to disturbance.
<u>Potential for Other Uses</u>		None							Removed from population centers. The best use of semiarid shrubland is open range for livestock and wildlife. SMCA requires return of land to equal or better production, but for the same use.
<u>Success Rate of Area Reclamation</u>		Low		Low success rate expected.			Good		Reclamation in the area has been trial and error. A 1980 study rates the adjacent Jim Bridger mine as having the worst success rate of 10 mines in Wyoming, including the Black Butte Mine.
<u>Unique Reclamation Needs</u>									The soils in the area are shallow and moderately alkaline. However DEQLQ and OSM have strict regulations governing the testing of soil and delineation of reclamation problems. Seed mixtures would be developed utilizing native species based on extensive testing of overburden and topsoil factors. The semiarid climate of the region dictates seeding be done in late fall or, early spring. Stands may take 5 years to become established. DEQLQ would approve the reclamation plan.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.

# THE SITE SPECIFIC ANALYSIS

Tract Name: Point of Rocks Tract

State: Wyoming

Leasing/Development Scenario: New Mine;  
Surface Mining

## Anticipated Impact

Resource Element	Committed Mitigation	Base Line (1985)	1992	1995	2000	ENL	Data Rel.*	Irreversible and Irrecoverable Commitments	Comments (Context and Proposed Mitigation)
<b>RECLAMATION POTENTIAL</b>									
<u>Potential for Back to Present Use VSC</u>	Mine plan and reclamation plan must be approved by Wyoming Department of Environmental Quality.	100% plants removed. No reclamation.							Reclamation plan must be designed to return area to open range multiple-use lands equal to that prior to disturbance.
<u>Potential for Other Uses</u>		None							Removed from population centers. The best use of semiarid shrubland is open range for livestock and wildlife. SMCRA requires return of land to equal or better production, but for the same use.
<u>Success Rate of Area Reclamation</u>		Low		Low success rate expected.			Good		Reclamation in the area has been trial and error. A 1980 study rates the adjacent Jim Bridger Mine as having the worst success rate of 10 mines in Wyoming, including the Slack Butte Mine.
<u>Unique Reclamation Needs</u>									The soils in the area are shallow and moderately alkaline. However DEQ and OSM have strict regulations governing the testing of soil and delineation of reclamation problems. Seed mixtures would be developed utilizing native species based on extensive testing of overburden and topsoil factors. The semiarid climate of the region dictates seeding be done in late fall or, early spring. Stands may take 3 years to become established. DEQ would approve the reclamation plan.

\*Data reliability: Good, 67-100% reliable; Fair, 34-66% reliable; Poor, 33% or less.



Table 1

FIVE-YEAR SUMMARY OF HORIZONTAL VISIBILITY  
IN THE BIG SANDY REGION

Horizontal Visibility (miles)	Number of Daylight Observations	Rock Springs	
		Differential Frequency (%)	Cumulative Frequency (%)
> 50	56	0.26	0.26
41-50	14,639	66.57	66.83
31-40	45	0.20	67.03
21-30	336	1.53	68.56
11-20	5,495	24.99	93.55
6-10	623	2.83	96.38
< 5	795	3.62	100.00
Total	21,989	100.00	

Table 2

THE ROCK SPRINGS AREA  
PRECIPITATION AND TEMPERATURE DATA FOR WINTER-TWENTY

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Maximum Monthly Precipitation in Inches and Year of Occurrence													
Rock Springs AP (1951-77)	1.17 (1962)	1.45 (1959)	1.97 (1977)	2.45 (1968)	3.56 (1971)	3.49 (1969)	3.67 (1973)	3.12 (1963)	3.67 (1965)	2.05 (1971)	1.50 (1957)	1.78 (1975)	
Mean Precipitation													
Rock Springs AP	0.45	0.51	0.68	1.04	1.12	1.03	0.88	0.69	0.76	0.88	0.53	0.54	8.88
Temperature Data													
Rock Springs AP													
Ext. max.	55	60	67	77	87	96	95	95	89	79	66	53	96
Mean max.	33	37	43	57	67	77	87	84	73	61	44	35	58
Mean	20	24	30	40	51	59	66	66	56	45	31	23	43
Mean min.	12	16	20	29	38	46	52	50	40	31	21	14	31
Ext. min.	-37	-20	-12	2	14	26	35	33	5	4	-12	-28	-37
Mean Annual Number of Days with Thunderstorms													
Grand Junction 1/ (1947-75)	*	*	1.0	2.0	4.0	5.0	8.0	8.0	5.0	1.0	*	*	35

Source: Science Applications, Inc. 1981.

1/ Representative of the area.

Table 3

## AVERAGE WIND SPEEDS BY HOUR AND MONTH IN THE ROCK SPRINGS AREA

1976-78		RD												
Mean	Speed	(M/S)												
Hour	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
1	4.2	3.0	3.7	2.9	2.8	2.2	2.2	2.0	2.1	2.2	4.3	4.5	2.9	
2	4.3	3.0	3.5	2.8	2.6	1.9	2.1	1.9	2.0	2.4	3.9	3.9	2.7	
3	4.6	3.0	3.5	2.7	2.5	2.0	2.1	1.8	1.8	2.5	3.9	3.9	2.7	
4	4.5	3.0	3.4	2.7	2.5	1.9	2.1	1.8	1.7	2.0	4.0	3.5	2.6	
5	4.8	3.0	3.4	2.5	2.5	1.8	1.9	1.7	1.5	1.9	4.0	3.4	2.6	
6	4.7	3.0	3.3	2.4	2.4	1.7	1.8	1.6	1.6	1.9	4.0	3.5	2.5	
7	4.9	3.0	3.2	2.8	2.7	2.1	2.2	1.6	1.8	2.0	3.8	3.3	2.7	
8	4.3	3.0	3.8	3.4	3.7	2.7	2.8	2.2	2.3	1.7	4.1	3.3	3.1	
9	4.0	3.3	4.6	4.0	4.4	3.2	3.2	2.7	2.9	2.4	4.3	3.9	3.6	
10	4.0	4.0	5.2	4.8	5.3	4.0	3.8	3.4	3.9	3.1	4.0	3.6	4.2	
11	4.7	4.8	6.1	5.2	6.0	4.4	4.5	4.3	4.6	3.9	4.2	4.6	4.9	
12	5.3	5.4	6.7	5.7	6.7	5.0	4.9	5.1	5.3	4.5	4.9	5.2	5.5	
13	6.4	6.0	6.9	6.3	6.9	5.5	5.3	5.5	6.0	5.0	5.3	5.5	6.0	
14	6.8	5.8	6.9	6.4	7.2	5.8	5.9	5.7	6.2	5.3	5.3	6.0	6.2	
15	7.1	6.0	6.9	6.6	7.4	6.0	6.0	5.9	6.2	5.6	5.4	6.2	6.3	
16	7.0	5.6	6.5	6.6	7.5	6.2	6.3	5.8	6.0	5.4	5.0	6.0	6.3	
17	6.8	5.1	6.4	6.2	7.6	6.4	6.3	6.0	5.5	4.7	5.1	5.2	6.1	
	5.6	4.7	5.6	5.9	7.2	6.0	5.7	5.6	4.4	3.5	5.0	4.3	5.5	
	4.3	3.8	4.4	4.7	6.1	5.9	5.0	4.4	3.1	3.0	4.6	4.6	4.6	
20	3.9	3.5	3.9	3.7	5.0	4.8	3.7	3.3	2.7	2.6	4.8	4.1	3.9	
21	4.0	3.6	4.1	3.2	4.1	3.6	2.9	3.1	2.6	2.7	5.1	4.7	3.6	
22	4.1	3.3	4.0	3.0	3.8	2.9	2.8	2.9	2.4	2.7	4.7	4.5	3.3	
23	4.4	3.1	3.6	2.9	3.4	2.6	2.4	2.5	2.4	2.6	4.5	4.4	3.1	
24	4.2	3.0	3.6	3.0	3.0	2.4	2.5	2.3	2.3	2.2	4.6	4.1	3.0	
Total	5.0	4.0	4.7	4.2	4.7	3.8	3.7	3.4	3.4	3.2	4.5	4.4	4.1	

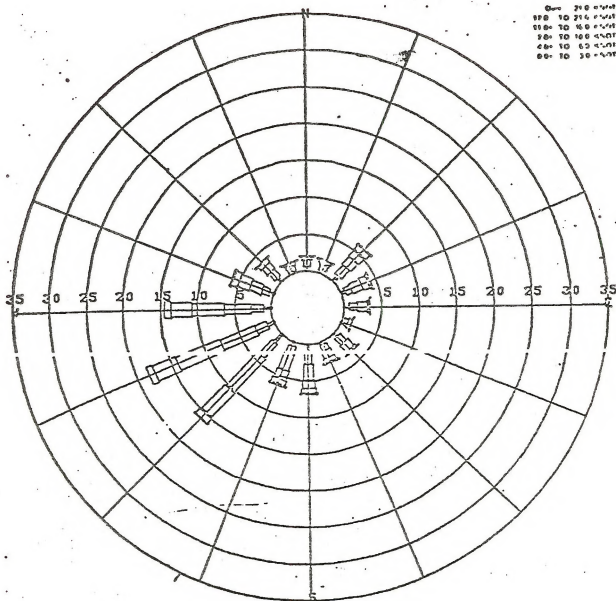
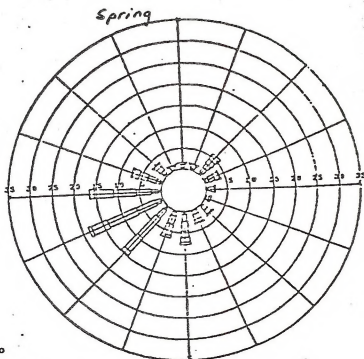
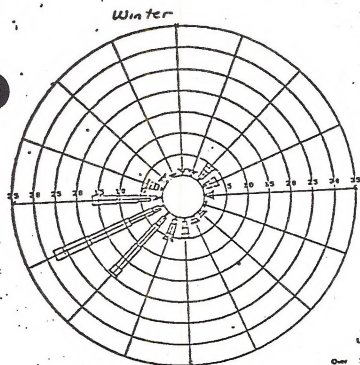


Figure 1:

1 knot = 1.15 mph



LEGEND

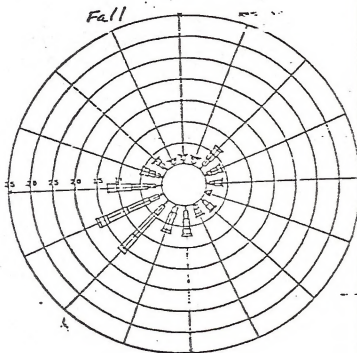
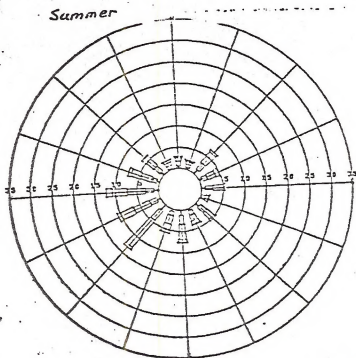
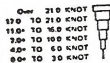


Figure 2

Five-Year (1950 to 1954) Seasonal Average Wind Roses for Rock Springs

1 knot = 1.15 mph

FIGURE 3

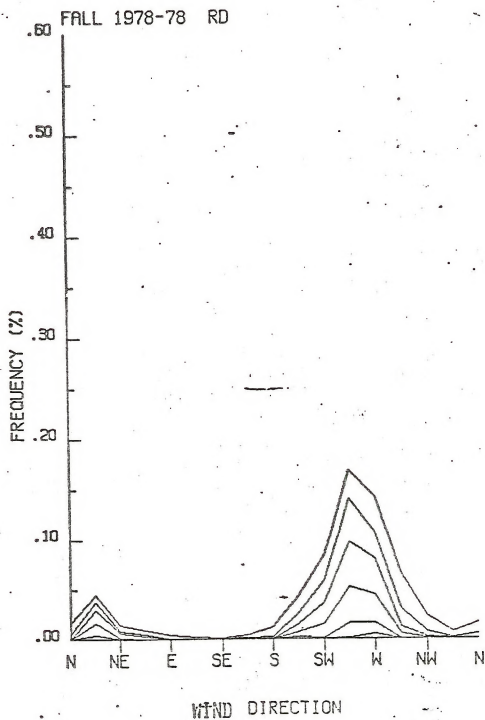


FIGURE 4

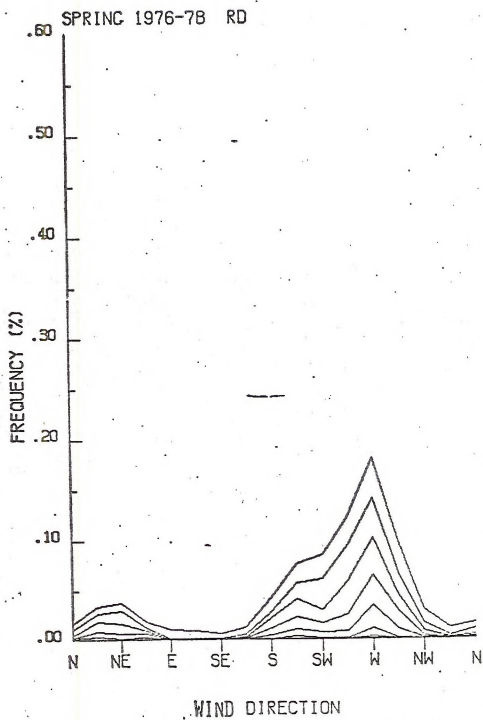


FIGURE 5

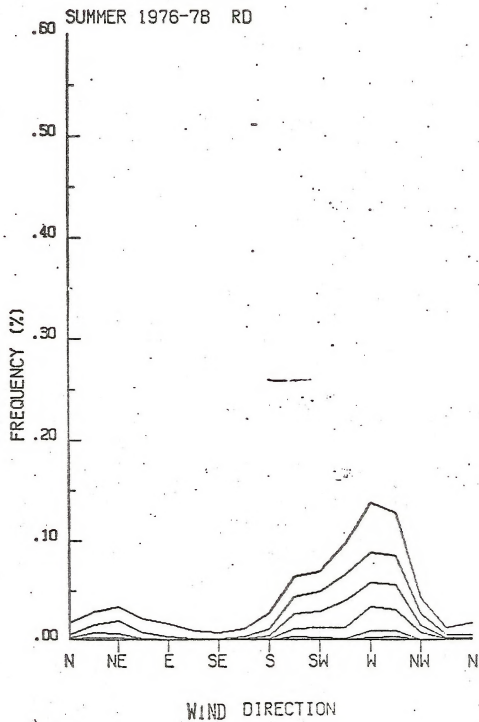




FIGURE 6

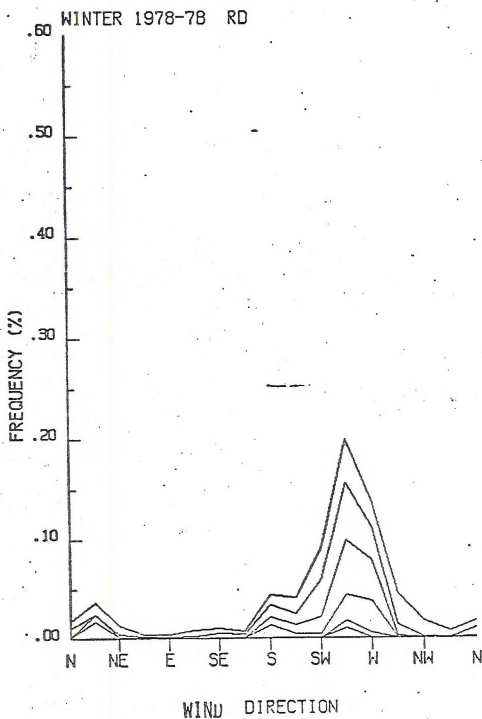


Table 4

## PAN EVAPORATION MEANS AND EXTREMES

	APR	MAY	JUN	JUL	AUG
<u>Salt Wells R.A.</u>					
Green River					
Mean.	9.11	9.92	12.26	10.92	7.62
Max.	11.60	11.53	13.15	12.74	8.97
Min.	6.79	8.00	11.59	8.95	6.04

Source: Science Applications, Inc. 1981.

Table 5

## PERCENT FREQUENCY OF OCCURRENCE OF THREE STABILITY CLASSES AT ROCK SPRINGS

	<u>Percent of Frequency</u>		
	<u>Stable</u>	<u>Neutral</u>	<u>Unstable</u>
Annual	17	54	29
Winter	7	67	26
Spring	14	63	23
Summer	29	39	32
Fall	16	47	37

## POINT OF ROCKS SOIL MAPPING UNIT DESCRIPTIONS

401

Pits-Dumps complex. This miscellaneous land type is made up of about 70 percent dumps and about 30 percent pits. Dumps are areas of mine overburden piled in very steep slopes ridges and cones. Pits are open excavations from which all soil and underlying materials have been removed, resulting in bare bedrock floors. Pits-Dumps complex is incapable of supporting much vegetation without major reclamation.

446

Horsley-Haterton alkali complex, 2 to 8 percent slopes. This map unit is on gently sloping residual uplands. Slopes are typically smooth but irregular adjacent to ravines and low steep scarps. The native vegetation is mainly upland salt desert shrub. Elevation is 6,200 to 7,200 feet. The average annual precipitation is about 7 to 9 inches, the average annual air temperature is 40 to 45 degrees F.

This unit is 50 percent Horsley channery loam, 2 to 8 percent slopes, and 30 percent Haterton loam, alkali, 2 to 8 percent slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Also included are small areas of Haterton, Bittercreek, Huguston, Terada, Monte, and Dines soils and Rock outcrop that make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Horsley soil is very shallow and well drained. It formed in residuum derived dominantly from shale. Typically, the surface layer is light brownish gray, channery loam about 2 inches thick. The substratum is light brownish gray loam about 5 inches thick over soft, calcareous shale. Depth to soft shale bedrock ranges from 4 to 10 inches.

Permeability of the Horsley soil is moderate. Available water capacity is about 0.4 to 1.5 inches. Effective rooting depths 4 to 10 inches. Runoff is rapid, and the hazard of water erosion is severe. The hazard of soil blowing is moderate.

The Haterton loam, alkali, soil is shallow and well drained. It formed in residuum derived dominantly from shale. Typically, the surface layer is light yellowish brown loam about 3 inches. The subsurface layer is light yellowish brown loam about 5 inches thick. The substratum is light yellowish brown loam about 5 inches thick over soft, calcareous shale. Depth to soft shale bedrock ranges from 10 to 20 inches.

Permeability of the Haterton loam, alkali, soil is moderate. Available water capacity is about 1.6 to 3.6 inches. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is severe. The hazard of soil blowing is moderate.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Horsley soil is mainly rhizomatous wheatgrasses, Gardner saltbush, bottlebrush squirreltail, and Indian ricegrass. The average annual production of air-dry vegetation ranges from 150 to 300 pounds per acre. The range site is Shale 7 to 9-inch P.Z.

The potential plant community on the Haterton loam, alkali, soil is mainly bottlebrush squirreltail, Indian ricegrass, and Gardner saltbush. The average annual production of air-dry vegetation ranges from 300 to 600 pounds per acre. The range site is Saline Upland 7 to 9-inch P.Z.

452

Huguston-Teagulf fine sandy loams, 3 to 8 percent slopes. This map unit is on gently sloping upland ridges, sideslopes and alluvial fans and terraces. Slopes are smooth. The native vegetation is mainly shrub grassland. Elevation is 6,200 to 7,200 feet. The average annual precipitation is about 7 to 9 inches, the average annual air temperature is 40 to 45 degrees F.

This unit is 50 percent Huguston fine sandy loam, 3 to 8 percent slopes, and 25 percent Teagulf fine sandy loam, 3 to 8 percent slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Also included are small areas of Winton, Tasselman, Kandaly, McCullen, Haterton, Bittercreek, and Pepal soils and Rock outcrop that make up about 25 percent of the total acreage. The percentage varies from one area to another.

The Huguston soil is shallow and well drained. It formed in residuum derived dominantly from sandstone. Typically, the surface layer is pale brown fine sandy loam about 2 inches thick. The subsurface layer is pale brown sandy loam about 3 inches thick. The substratum is very pale brown gravelly sandy loam and sandy loam about 14 inches thick over soft calcareous sandstone. Depth to soft sandstone bedrock ranges from 10 to 20 inches.

Permeability of the Huguston soil is moderately rapid. Available water capacity is about 1.3 to 3.0 inches. Effective rooting depth is 10 to 20 inches. Runoff is slow or medium, and the hazard of water erosion is slight to moderate. The hazard of soil blowing is moderate to severe.

The Teagulf soil is moderately deep and well drained. It formed in residuum or alluvium derived dominantly from sandstone. Typically, the surface layer is light yellowish brown fine sandy loam about 3 inches thick. The subsoil is yellowish brown sandy loam about 21 inches thick. The substratum is brownish yellow and very pale brown sandy loam about 14 inches thick over soft sandstone. Depth to sandstone bedrock ranges from 20 to 40 inches.

Permeability of the Teagulf soil is moderately rapid. Available water capacity is about 2.1 to 5.1 inches. Effective rooting depth is 20 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate to severe.

The unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Huguston soil is mainly needle-and-thread, Indian ricegrass, and thickspike wheatgrass. The average annual production of air-dry vegetation ranges 200 to 450 pounds per acre. The range site is Shallow Sandy 7 to 9 inch-P.Z.

The potential plant community on the Teagulf soil is mainly needle-and-thread, Indian ricegrass, thickspike wheatgrass, and big sagebrush. The average annual production of air-dry vegetation ranges from 300 to 700 pounds per acre. The range site is Sandy 7 to 9-inch P.Z.

455

Thayer fine sandy loam, 1 to 6 percent slopes. This deep, well drained soil is on nearly level and gently sloping alluvial fans. It formed in alluvium derived dominantly from sandstone. Slopes are smooth. The native vegetation is mainly upland salt desert shrub. Elevation is 6,200 to 7,200 feet. The average annual precipitation is about 7 to 9 inches, the average annual air temperature is 40 to 45 degrees F.

Typically, the surface layer is pale brown fine sandy loam about 2 inches thick. The subsurface layer is pale brown fine sandy loam about 2 inches thick. The subsurface layer is pale brown sandy loam about 10 inches thick. The underlying material to a depth of 60 inches is pale brown sandy loam.

Also included are small areas of Leckman, Quealman, Sandbranch, and Dinco soils that make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Thayer soil is moderately rapid. Available water capacity is about 4.2 to 6.6 inches. Effective rooting depth is 60 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate to severe.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on this unit is mainly bottlebrush squirreltail, Indian ricegrass, and Gardner saltbush. The average annual production of air-dry vegetation ranges from 300 to 600 pounds per acre. The range site is Saline Upland 7 to 9-inch P.Z.

459

Rock outcrop-Winton-Horsley association, steep and very steep. This map unit is on steep to vertical escarpments. Slope is 30 to 100 percent. Slopes are irregular. The native vegetation is mainly upland salt desert shrub, shrub grassland, and barren ground. Elevation is 6,200 to 8,000 feet. The average annual precipitation is about 7 to 9 inches, the average annual air temperature is 40 to 45 degrees F.

This unit is 40 percent Rock outcrop, 25 percent Winton sandy loam, 30 to 100 percent slopes, and 25 percent Horsley silty clay loam, 30 to 100 percent slopes. The rock outcrop is on sandstone cliffs and ledges and shale toeslopes, the Winton soil is on steps and benches on the upper part of the escarpment, and the Horsley soil is on steep sideslopes and toeslopes.

Also included are small areas of Tasselman and Boltus soils on convex surfaces and Sagecreek soils in small swales. Included soils make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Winton soil is very shallow and well drained. It formed in residuum derived dominantly from sandstone. Typically, the surface layer is pale brown, sandy loam about 1 inch thick. The subsurface layer is light yellowish brown, channery sandy loam about 4 inches thick over hard sandstone. Depth to sandstone bedrock ranges from 6 to 20 inches.

Permeability of the Winton soil is moderately rapid. Available water capacity is about 0.5 to 2.4 inches. Effective rooting depth is 6 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

The Horsley soil is very shallow and well drained. It formed in residuum derived dominantly from shale. Typically, the surface layer is light yellowish brown, silty clay loam about 2 inches thick. The substratum is pale yellow, silty clay loam about 6 inches thick over soft shale. Depth to soft shale ranges from 4 to 10 inches.

Permeability of the Horsley soil is moderate. Available water capacity is about 0.4 to 1.5 inches. Effective rooting depth is 4 to 10 inches. Runoff is rapid, and the hazard of water erosion is severe. The hazard of soil blowing is moderate.

This unit is used for wildlife habitat.

The potential plant community on the Winton soil is mainly bluebunch wheatgrass, bottlebrush squirreltail, and Indian ricegrass. The average annual production of air-dry vegetation ranges from 200 to 400 pounds per acre. The range site is Very Shallow 7 to 9-inch P.Z.

The potential plant community on the Horsley soil is mainly rhizomatous wheatgrasses, Gardner saltbush, bottlebrush squirreltail, and Indian ricegrass. The average annual production of air-dry vegetation ranges from 150 to 300 pounds per acre. The range site is Shale 7 to 9-inch P.Z.

461

Rock outcrop. This unit is on steep to vertical sandstone escarpments with some steep shale footslopes in some areas. These bedrock exposures support no vegetation. Elevation is 6,200 to 8,500 feet. The average annual precipitation is about 7 to 14 inches, the average annual air temperature is 35 to 45 degrees F., and the average frost-free period is 60 to 120 days.

Also included are small areas of shallow to deep sand and loamy sand soils. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

This unit is used for wildlife habitat.

There is no potential plant community on this unit.



Huguston-Rock outcrop-Terada complex, 6 to 30 percent slopes. This map unit is on rolling to hilly residual uplands. Slopes are irregular. The native vegetation is mainly shrub grassland. Elevation is 6,200 to 7,200 feet. The average annual precipitation is about 7 to 9 inches, the average annual air temperature is 40 to 45 degrees F.

This unit is 40 percent Huguston sandy loam, 6 to 30 percent slopes, 20 percent Rock outcrop, and 20 percent Terada fine sandy loam, 6 to 30 percent slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Also included are small areas of Leckman, Winton, and Kandaly soils that make up about 20 percent of the total acreage. The percentage varies from one area to another.

The Huguston soil is shallow and well drained. It formed in residuum derived dominantly from shale. Typically, the surface layer is yellowish brown sandy loam about 4 inches thick. The substratum is yellowish brown sandy loam about 4 inches thick. The substratum is yellowish brown fine sandy loam about 13 inches thick over soft sandy shale. Depth to soft sedimentary bedrock ranges from 10 to 20 inches.

Permeability of the Huguston soil is moderately rapid. Available water capacity is about 1.3 to 3.0 inches. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate to severe.

The Terada soil is moderately deep and well drained. It formed in residuum derived dominantly from sandstone or sandy shale. Typically, the surface layer is pale brown fine sandy loam about 3 inches thick. The subsurface layer is light yellowish brown fine sandy loam about 10 inches thick. The substratum is very pale brown fine sandy loam about 12 inches thick over soft sandstone. Depth to soft sedimentary bedrock ranges from 20 to 40 inches.

Permeability of the Terada soil is moderately rapid. Available water capacity is about 2.2 to 5.2 inches. Effective rooting depth is 20 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate to severe.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Huguston soil is mainly needle-and-thread, Indian ricegrass, and thickspike wheatgrass. The average annual production of air-dry vegetation ranges from 200 to 450 pounds per acre. The range site is Shallow Sandy 7 to 9-inch P.Z.

The potential plant community on the Terada soil is mainly needle-and-thread, Indian ricegrass, thickspike wheatgrass, and big sagebrush. The average annual production of air-dry vegetation ranges from 300 to 700 pounds per acre. The range site is Sandy 7 to 9-inch P.Z.



Horsley-Huguston-Rock outcrop complex, 8 to 30 percent slopes. This map unit is on hilly residual uplands and upland sideslopes. Slope is 8 to 30 percent. Slopes are irregular and dissected by drainageways. The native vegetation is mainly upland salt desert shrub and shrub grassland. Elevation is 6,200 to 7,200 feet. The average annual precipitation is about 7 to 9 inches, the average annual air temperature is 40 to 45 degrees F.

This unit is 35 percent Horsley loam, 8 to 30 percent slopes, 20 percent Huguston fine sandy loam, 8 to 30 percent slopes, and 20 percent Rock outcrop. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Also included are small areas of Haterton, Winton, Kandaly, Youjay, Thayer, Bittercreek, and Haterton, alkali, soils that make up about 25 percent of the total acreage. The percentage varies from one area to another.

The Horsley soil is very shallow and well drained. It formed in residuum derived dominantly from shale. Typically, the surface layer is light yellowish brown loam about 2 inches thick. The underlying material to a depth of 7 inches is light yellowish brown silty clay loam. Depth to shale ranges from 4 to 10 inches.

Permeability of the Horsley soil is moderate. Available water capacity is about 0.75 to 1.5 inch. Effective rooting depth is 6 to 10 inches. Runoff is moderate to rapid, and the hazard of water erosion is severe. The hazard of soil blowing is moderate.

The Huguston soil is shallow and well drained. It formed in residuum derived dominantly from sandstone. Typically, the surface layer is yellowish brown sandy loam about 3 inches thick. The subsurface layer is brownish yellow sandy loam about 7 inches thick. The substratum is yellowish brown sandy loam about 5 inches thick over soft sandstone. Depth to interbedded soft sandstone and shale ranges from 10 to 20 inches.

Permeability of the Huguston soil is moderately rapid. Available water capacity is about 1.65 to 2.25 inches. Effective rooting depth is 10 to 20 inches. Runoff is slow to rapid, and the hazard of water erosion is moderate. The hazard of soil blowing moderate to high.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Horsley soil is mainly rhizomatous wheatgrasses, Gardner saltbush, bottlebrush squirreltail, and Indian ricegrass. The average annual production of air-dry vegetation ranges from 150 to 300 pounds per acre. The range site is Shale 7 to 9-inch P.Z.

The potential plant community on the Huguston soil is mainly needle-and-thread, Indian ricegrass, and thickspike wheatgrass. Average annual production of air-dry vegetation ranges from 200 to 450 pounds per acre. The range site is Shallow Sandy 7 to 9-inch P.Z.

Kandaly-Huguston-Teagulf complex, 3 to 15 percent slopes. This map unit is on undulating and rolling upland plains. Slopes are smooth. The native vegetation is mainly shrub grassland. Elevation is 6,200 to 7,200 feet. The average annual precipitation is about 7 to 9 inches, the average annual air temperature is 40 to 45 degrees F.

This unit is 40 percent Kandaly loamy fine sand, 3 to 15 percent slopes, 20 percent Huguston sandy loam, 3 to 10 percent slopes, and 20 percent Teagulf sandy loam, 3 to 8 percent slopes. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Also included are small areas of rock outcrop and Winton soils (adjacennco, Leckman, and Kandaly soils that make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Monte saline soil is moderate. Available water capacity is about 7.2 to 8.4 inches. Effective rooting depth is 40 to 60 inches. Runoff is moderate, and the hazard of water erosion is low to moderate. The hazard of soil blowing is slight to moderate.

The potential plant community on the Monte soil is mainly bottlebrush squirreltail, Indian ricegrass, the Gardner saltbush. The average annual production of air-dry vegetation ranges from 300 to 600 pounds per acre. The range site is Saline Upland 7 to 9-inch P.Z.

The Huguston soil is shallow and well drained. It formed in residuum derived dominantly from sandstone. Typically, the surface layer is pale brown, sandy loam about 3 inches thick. The subsurface layer is light yellowish brown, sandy loam about 5 inches thick. The substratum is very pale brown, sandy loam about 6 inches thick over soft sandstone. Depth to soft sandstone or sandy shale bedrock ranges from 10 to 20 inches.

Permeability of the Huguston soil is moderately rapid. Available water capacity is about 1.3 to 3.0 inches. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate to severe.

The Teagulf soil is moderately deep and well drained. It formed in residuum or alluvium derived dominantly from sandstone. Typically, the surface layer is pale brown, sandy loam about 4 inches thick. The subsoil is light yellowish brown, sandy loam about 10 inches thick. The substratum is very pale brown, sandy loam about 13 inches thick over soft sandstone. Depth to soft sandstone ranges from 20 to 40 inches.

Permeability of the Teagulf soil is moderately rapid. Available water capacity is about 2.1 to 5.1 inches. Effective rooting depth is 20 to 40 inches. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is moderate to severe.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Kandaly soil is mainly needle-and-thread, Indian ricegrass, and bottlebrush squirreltail. The average annual production of air-dry vegetation ranges from 350 to 700 pounds per acre. The range site is Sands 7 to 9-inch P.Z.

The potential plant community on the Teagulf soil is mainly needle-and-thread, Indian ricegrass, thickspike wheatgrass, and big sagebrush. The average annual production of air-dry vegetation ranges from 300 to 700 pounds per acre. The range site is Sandy 7 to 9-inch P.Z.

552

Feltner taxadjunct-Blazon complex, 1 to 10 percent slopes. This map unit is on gently sloping uplands. Slopes are smooth. The native vegetation is mainly shrub grassland. Elevation is 7,000 to 8,000 feet. The average annual precipitation is about 10 to 14 inches, the average annual air temperature is 35 to 40 degrees F.

This unit is 40 percent Feltner taxadjunct fine sandy loam, 1 to 10 percent slope, and 25 percent Blazon loam, 1 to 10 percent slopes. Also in this unit is about 10 percent Zeona loamy sand. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Also included are small areas of Blackhall, Shinbara, Spool, and Lamarsh soils and Rock outcrop that make up about 25 percent of the total acreage. The percentage varies from one area to another.

The Feltner taxadjunct soil is shallow and well drained. It formed in residuum derived dominantly from sandstone. Typically, the surface layer is pale brown, fine sandy loam about 4 inches thick. The subsoil is light yellowish brown, fine sandy loam about 12 inches thick. The underlying material is soft sandstone. Depth to soft sedimentary bedrock ranges from 10 to 20 inches.

Permeability of the Feltner taxadjunct soil is moderately rapid. Available water capacity is about 1.1 to 2.6 inches. Effective rooting depth is 10 to 20 inches. Runoff is medium to rapid, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate to severe.

The Blazon soil is shallow and well drained. It formed in residuum derived dominantly from shale. Typically, the surface layer is pale brown loam about 3 inches thick. The substratum is light yellowish brown loam about 11 inches thick over soft shale. Depth to soft sedimentary bedrock ranges from 10 to 20 inches.

Permeability of the Blazon soil is moderate. Available water capacity is about 1.6 to 3.6 inches. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

This unit is used for livestock grazing and wildlife habitat.

The potential plant community on the Feltner taxadjunct soil is mainly needle-and-thread, Indian ricegrass, and bottlebrush squirreltail. The average annual production of air-dry vegetation ranges from 700 to 1,200 pounds per acre. The range site is Shallow Sandy 10 to 14-inch P.Z.

The potential plant community on the Blazon soil is mainly rhizomatous wheatgrasses, bluebunch wheatgrass, Indian ricegrass, and needle-and-thread. The average annual production of air-dry vegetation ranges from 700 to 1,200 pounds per acre. The range site is Shallow Loamy 10 to 14-inch P.Z.

Table 6  
POINT OF ROCKS INTERPRETIVE SOILS DATA BY MAPPING UNIT

Soil name and map symbol	Depth (in.)	USDA texture	Classification Unified AASHTO	Frag-ments >3" (%)	Percentage passing sieve number				Liquid limit (%)	Plas-ticity index	
					4	10	40	200			
401-Pits-Dumps complex		Not available									
446-Horsley	0-2	channeery loam	CH-GC, SH	A-4	0	50-75	50-75	45-65	35-50	25-35	5-10
	2-7	loam	CL-ML, ML	A-4	0	75-100	75-100	70-100	50-70	25-30	5-10
-Meterton alkali	0-13	loam	CL-ML, ML	A-4	0	75-100	75-100	70-100	50-70	25-30	5-10
452-Buguston	0-2	fine sandy loam	SH	A-2, A-4	0	75-100	75-100	55-75	30-40	—	NP
	2-5	sandy loam	SH	A-2	0	75-100	75-100	50-65	25-35	—	NP
	5-19	gravelly sandy loam/sandy loam	SH	A-2	0	65-100	65-100	50-65	25-35	—	NP
-Teagulf	0-3	fine sandy loam	SH-SC	A-2, A-4	0-5	80-100	75-100	50-80	25-50	15-25	5-10
	3-38	sandy loam	SH-SC	A-2, A-4	0-5	80-100	75-100	50-80	25-50	15-25	5-10
455-Thayer	0-2	fine sandy loam	SH, SH-SC, ML	A-4	—	80-100	75-100	60-80	35-55	10-25	NP-10
459-Rock outcrop		Not rated									
-Winton	0-1	sandy loam	SH	A-2	0	75-100	75-100	50-65	25-35	—	NP
	1-9	channeery sandy loam	SH-SC	A-2, A-4	0-15	55-80	50-75	30-50	15-40	10-25	5-10
-Horsley	0-8	silty clay loam	CL	A-6	0	100	100	90-100	70-95	35-40	15-20
461-Rock outcrop		Not rated									
466-Buguston	0-4	sandy loam	SH	A-2	0	75-100	75-100	50-65	25-35	—	NP
	4-17	fine sandy loam	SH	A-2, A-4	0	75-100	75-100	55-75	30-40	—	NP
-Rock outcrop		Not rated									
-Terada	0-25	fine sandy loam	SH	A-2, A-4	0	75-100	75-100	55-75	30-40	—	NP
467-Horsley	0-2	loam	CL-ML, ML	A-4	0	75-100	75-100	70-100	50-70	25-30	5-10
	2-7	silty clay loam	CL	A-6	0	100	100	90-100	70-95	35-40	15-20
-Buguston	0-15	sandy loam	SH	A-2	0	75-100	75-100	50-65	25-35	—	NP
-Rock outcrop		Not rated									
468-Kandaly	0-60	loamy fine sandy	SH	A-2	0	100	100	75-95	20-35	<20	NP-5
-Buguston	0-18	sandy loam	SH	A-2	0	75-100	75-100	50-65	25-35	—	NP
-Teagulf	0-14	sandy loam	SH-SC	A-2, A-4	0-5	80-100	75-100	50-80	25-50	15-25	5-10
552-Feltner taxadjunct	0-16	fine sandy loam	SC-SH, SC, SH, CL-ML	A-2-A, A-4	0	90-100	75-100	45-85	20-55	10-25	NP-10
-Blazon	0-14	loam	ML, CL-ML	A-4	0-5	80-100	80-100	70-90	55-70	25-35	5-10

Table 6  
(continued)

Soil Name and Map Symbol	Depth (In.)	Permeability (In./hr.)	Available Water Capacity (In./In.)	Soil Reaction (pH)	Salinity (Mhos/cm)	Shrink- Swell Potential	Erosion Factors K T	Wind Erodi- bility Group
401-Pits-Dumpa complex		Not available						
446-Horsley	0-2 2-7	0.6-2.0 0.6-2.0	0.11-0.15 0.16-0.18	7.4-9.0 7.4-9.0	2-4 2-4	low low	0.32 0.37	1 4L
-Waterton alkali	0-13	0.6-2.0	0.16-0.18	>8.5	2-4	low	0.37	2 4L
452-Huguston	0-2 2-5 5-19	2.0-6.0 2.0-6.0 2.0-6.0	0.13-0.15 0.11-0.13 0.11-0.13	7.4-8.4 7.4-8.4 7.4-8.4	2-4 2-4 2-4	low low low	0.32 0.24 —	2 3
-Teagulf	0-3 3-38	2.0-6.0 2.0-6.0	0.11-0.14 0.09-0.12	7.9-9.0 7.9-9.0	<4 4B	low low	0.28 0.32	3 3
455-Thayer	0-2 2-60	2.0-6.0 2.0-6.0	0.07-0.11 0.11-0.13	7.9-9.0 7.9-9.0	— —	low low	0.32 0.24	5 3
459-Rock outcrop		Not rated						
-Winton	0-1 1-9	2.0-6.0 2.0-6.0	0.11-0.13 0.08-0.12	7.4-8.4 7.4-8.4	<4 4C	low low	0.24 0.28	1 3
-Horsley	0-8	0.2-0.6	0.12	7.4-9.0	2-4	high	0.32	1 4
461-Rock outcrop		Not rated						
466-Huguston	0-4 4-17	2.0-6.0 2.0-6.0	0.11-0.13 0.13-0.15	7.4-8.4 7.4-8.4	2-4 2-4	low low	0.24 0.32	2 3
-Rock outcrop		Not rated						
-Terada	0-25	2.0-6.0	0.13-0.15	7.9-9.0	<2	low	0.32	3 3
467-Horsley	0-2 2-7	0.6-2.0 0.2-0.6	0.16-0.18 0.12	7.4-9.0 7.4-9.0	2-4 2-4	low high	0.37 0.32	1 4L
-Huguston	0-15	2.0-6.0	0.11-0.13	7.4-8.4	2-4	low	0.24	2 3
-Rock outcrop		Not rated						
468-Kandaly	0-60	6.0-2.0	0.08-0.10	7.4-8.4	<2	low	0.32	5 2
-Huguston	0-18	2.0-6.0	0.11-0.13	7.4-8.4	2-4	low	0.24	2 3
-Teagulf	0.14 14-27	2.0-6.0 2.0-6.0	0.11-0.14 0.09-0.12	7.9-9.0 7.9-9.0	<4 4B	low low	0.28 0.32	3 3
552-Feltner taxadjunct	0-16	2.0-6.0	0.13-0.15	7.5-8.4	<2	low	0.32	1 3
-Elason	0-14	0.6-2.0	0.16-0.18	7.9-9.0	2-4	low	0.32	1 4L

Table 6  
(cont.)

Soil Name and Map Symbol	Hydro- logic group	Flooding			High Water Table		
		Freq.	Duration	Months	Depth (ft.)	Kind	Months
401-Pits-Dumps complex	Not available						
446-Horsley	C	none			>6.0		
-Waterton alkali	D	none			>6.0		
452-Huguston	D	none			>6.0		
-Teagulf	B	none			>6.0		
455-Thayer	B	none			>6.0		
459-Rock outcrop	Not rated						
-Winton	C	none			>6.0		
-Horsley	C	none			>6.0		
461-Rock outcrop	Not rated						
466-Huguston	D	none			>6.0		
-Rock outcrop	Not rated						
-Terada	B	none			>6.0		
467-Horsley	C	none			>6.0		
-Huguston	D	none			>6.0		
-Rock outcrop	Not rated						
468-Kandely	A	none			>6.0		
-Huguston	D	none			>6.0		
-Teagulf	B	none			>6.0		
552-Feltner taxadjunct	D	none			>6.0		
-Blazon	D	none			>6.0		

Table 6  
(Continued)

Soil Name and map symbol	Bedrock		Cemented Pan		Subsidence		Potential Frost Action	Risk of Corrosion	
	Depth (in.)	Hardness	Depth (in.)	Hardness	Init. (in.)	Total (in.)		Steel	Concrete
461-Pits-Dumps complex		Not available							
446-Horsley	3-10	rippable	--		--		low	high	moderate
-Waterton alkali	10-20	rippable	--		--		low	high	moderate
452-Huguston	10-20	rippable	--		--		low	high	low
-Teagulf	20-40	rippable	--		--		low	high	low
455-Thayer	>60		--		--		low	high	low
459-Rock outcrop		Not rated							
-Minton	4-10	hard	--		--		low	high	low
-Horsley	3-10	rippable	--		--		low	high	moderate
461-Rock outcrop		Not rated							
466-Huguston	10-20	rippable	--		--		low	high	low
-Rock outcrop		Not rated							
-Terada	20-40	rippable	--		--		low	high	low
467-Horsley	3-10	rippable	--		--		low	high	moderate
-Huguston	10-20	rippable	--		--		low	high	low
-Rock outcrop		Not rated							
468-Randaly	>60		--		--		low	high	low
-Huguston	10-20	rippable	--		--		low	high	low
-Teagulf	20-40	rippable	--		--		low	high	low
552-Feltner	10-20	rippable	--		--		low	high	low
-taxadjunct									
-Blazon	10-20	rippable	--		--		low	high	low



Table 7

PERCENT VEGETATIVE COMPOSITION IN THE POINT OF ROCKS TRACT BY SITE WRITE-UP AREA (SWA)

SWA	Range Sites	Plant Species	Percent Composition
B106	Sandy 35% Shallow Sandy 55% Sands 10%	Big sagebrush	25
		Douglas rabbitbrush	12
		Shadscale	10
		Thickspike wheatgrass	44
		Needle-and-thread	2
		Indian ricegrass	2
B102	Sandy 20% Shallow Sandy 35% Steep Shallow Sandy 35%	Phlox	5
		Big sagebrush	32
		Douglas rabbitbrush	14
		Shadscale	5
		Spiny hopsage	7
		Forbs	10
		Needle-and-thread	3
		Thickspike wheatgrass	25
		Indian ricegrass	4
B132	Shallow Sandy	Big sagebrush	39
		Douglas rabbitbrush	20
		Mountain snowberry	5
		Forbs	12
		Bluebunch wheatgrass	12
		Thickspike wheatgrass	5
		Salina wildrye	7
B109	Shallow Loamy 25% Rock outcrop 30% Loamy 15% Shale 5%	Chicken sage	5
		Douglas rabbitbrush	10
		Big sagebrush	35
		Forbs	10
		Sandberg bluegrass	5
		Salina wildrye	5
		Bluebunch wheatgrass	5
		Big bluegrass	5
		Thickspike wheatgrass	2
		Indian ricegrass	2
		Mountain snowberry	5
		Mountain mahogany	11
B131	Shallow Sandy 70% Sandy 30%	Big sagebrush	50
		Douglas rabbitbrush	10
		Shadscale	5
		Forbs	5
		Bluebunch wheatgrass	20
		Sandberg bluegrass	5
		Canby bluegrass	5
B114	Shallow Sandy 60% Shale 20% Rock outcrop 20%	Chicken sage	5
		Big sagebrush	60
		Douglas rabbitbrush	10
		Shadscale	10
		Forbs	5
		Bottlebrush squirreltail	5
B108	Saline Upland 65% Sandy 35%	Sandberg bluegrass	5
		Gardner's saltbush	5
		Bud sagebrush	15
		Greenmoly summer cypress	35
		Onion	5
		Bottlebrush squirreltail	25
		Sandberg bluegrass	15
A056	Sandy 45% Shallow Sandy 15%	Big sagebrush	41
		Douglas rabbitbrush	16
		Shadscale	5
		Spiny hopsage	6
		Forbs	4
		Needle-and-thread	5
		Thickspike wheatgrass	4
		Bottlebrush squirreltail	3
		Indian ricegrass	10
		Sandberg bluegrass	2
		Western wheatgrass	4
B107	Saline Upland 35% Sandy 65%	Big sagebrush	60
		Douglas rabbitbrush	5
		Hoods phlox	5
		Thickspike wheatgrass	25
		Sandberg bluegrass	5

Table 8

## VEGETATION IN THE POINT OF ROCKS TRACT BY RANGE SITE

Section	SW	Range Site	Plant Community	Plant Species	Range Condition
T.21N., R.101W.					
Sec. 32	B132	shallow sandy	big sagebrush Douglas rabbit- brush grass	<u>Grasses</u> thickspike wheatgrass bluebunch wheatgrass saline wildrye  <u>Shrubs</u> big sagebrush Douglas rabbitbrush mountain snowberry	Fair
	B114	shallow sandy 50%	big sagebrush Douglas rabbit- brush grass	<u>Grasses</u> bottlebrush squirreltail Sandberg bluegrass  <u>Shrubs</u> big sagebrush Douglas rabbitbrush shadscale	Fair
	B114	shale 20%	saltbush sagebrush winterfat grass	<u>Grasses</u> bottlebrush squirreltail thickspike wheatgrass Sandberg bluegrass  <u>Shrubs</u> Gardner's saltbush bud sagebrush winterfat	
32	B114	rock 20%	sagebrush Douglas rabbitbrush grass	<u>Grasses</u> thickspike wheatgrass  <u>Shrubs</u> Douglas rabbitbrush big sagebrush	Fair
33	B114	same as in sec. 32			
	B131	shallow sandy 70%	sagebrush Douglas rabbitbrush saltbush grass	<u>Grasses</u> bluebunch wheatgrass Sandberg bluegrass  <u>Shrubs</u> big sagebrush Douglas rabbitbrush shadscale	Fair
	B131	sandy 30%	sagebrush-grass	<u>Grasses</u> thickspike wheatgrass bottlebrush squirreltail Sandberg bluegrass  <u>Shrub</u> big sagebrush	

Table 8  
(continued)

Section	SW	Range Site	Plant Community	Plant Species	Range Condition
T. 20N., R. 101W.					
6	B107	saline upland 15%	sagebrush-grass	<u>Grasses</u> bottlebrush squirreltail Sandberg bluegrass	Poor
				<u>Shrubs</u> bud sagewort big sagebrush	
	B107	sandy 65%	sagebrush rabbitbrush grass	<u>Grasses</u> thickspike wheatgrass Sandberg bluegrass Douglas rabbitbrush	Fair
	B114	same as T. 21 W., R. 101 W., sec. 32			
8	A056	sandy 45%	sagebrush rabbitbrush grass	<u>Grasses</u> needle-and-thread bottlebrush squirreltail Indian ricegrass sandberg bluegrass	Fair
				<u>Shrubs</u> big sagebrush Douglas rabbitbrush shadscale spiny hopsage	
8	A056	sandy 25%	sagebrush-grass	<u>Grasses</u> needle-and-thread thickspike wheatgrass Indian ricegrass	Fair
				<u>Shrubs</u> spiny hopsage rubber rabbitbrush Douglas rabbitbrush big sagebrush horsebrush	
	A056	shallow sandy 15%	sagebrush-grass	<u>Grasses</u> needle-and-thread Indian ricegrass bluebunch wheatgrass	Fair
				<u>Shrubs</u> big sagebrush Douglas rabbitbrush	
	A056	disturbed area irrigation pipeline 15%			
	B107	same as sec. 6			
8	B108	saline upland 65%	sagebrush saltbush grass	<u>Grasses</u> bottlebrush squirreltail Sandberg bluegrass	Fair
				<u>Shrubs</u> bud sagebrush Gardner's saltbush	

Table 8  
(continued)

Section	SWA	Range Site	Plant Community	Plant Species	Range Condition
	B108	sandy 35%	sagebrush-grass	<u>Grasses</u> bottlebrush squirreltail Canby bluegrass  <u>Shrubs</u> big sagebrush Douglas rabbitbrush	Fair
17	B108	same as sec. 8			
21	B108	same as sec. 8			
	B109	shallow loamy 25%	mountain mahogany sagebrush rabbitbrush grass	<u>Grasses</u> Indian ricegrass bluebunch wheatgrass Canby bluegrass  <u>Shrubs</u> big sagebrush mountain snowberry mountain mahogany Douglas rabbitbrush	
21	B109	rock outcrop 30%	sagebrush rabbitbrush grass saltbush	<u>Grasses</u> Sandberg bluegrass saline wildrye  <u>Shrubs</u> chicken sage Douglas rabbitbrush big sagebrush Gardner's saltbush	Fair
	B109	loamy 15%	sagebrush-grass	<u>Grasses</u> Sandberg bluegrass thickspike wheatgrass basin wildrye big bluegrass  <u>Forbs</u> senecio penstemon  <u>Shrubs</u> big sagebrush	
	B109	shale 5%	saltbush	<u>Shrubs</u> Gardner's saltbush	Poor
22	B102	sandy 20%	sagebrush rabbitbrush grass	<u>Grasses</u> needle-and-thread thickspike wheatgrass Indian ricegrass Sandberg bluegrass  <u>Shrubs</u> big sagebrush Douglas rabbitbrush horsebrush	Good

Table 8  
(continued)

Section	SWA	Range Site	Plant Community	Plant Species	Range Condition
22	B102	shallow sandy 35%	sagebrush rabbitbrush saltbush grass	<u>Grasses</u> thickspike wheatgrass bluebunch wheatgrass  <u>Shrubs</u> big sagebrush Douglas rabbitbrush shadscale	Fair
	B102	sandy 10%	spiny hop sage sagebrush rabbitbrush grass	<u>Grasses</u> thickspike wheatgrass  <u>Shrubs</u> spiny hop sage Douglas rabbitbrush big sagebrush	Poor
	B102	steep shallow sandy 35%	sagebrush rabbitbrush grass	<u>Grasses</u> thickspike wheatgrass Indian ricegrass  <u>Shrubs</u> big sagebrush Douglas rabbitbrush horsebrush	Fair
	B106	sandy 35%	sagebrush saltbush grass	<u>Grasses</u> needle-and-thread thickspike wheatgrass Sandberg bluegrass  <u>Shrubs</u> big sagebrush shadscale Douglas rabbitbrush	Fair
22	B106	shallow sandy 55%	sagebrush rabbitbrush grass	<u>Grasses</u> Indian ricegrass thickspike wheatgrass  <u>Shrubs</u> big sagebrush Douglas rabbitbrush shadscale winterfat	Fair
	B106	sands 10%	spiny hop sage sagebrush-grass	<u>Grasses</u> thickspike wheatgrass Indian ricegrass needle-and-thread basin wildrye  <u>Shrubs</u> spiny hop sage big sagebrush	
	B108	same as sec. 9			
23	B102	same as sec. 22			
27	B108	same as sec. 9			
	B102	same as sec. 22			
26	B102	same as sec. 22			

MAP 2  
POINT OF ROCKS TRACT  
CULTURAL RESOURCE POTENTIAL

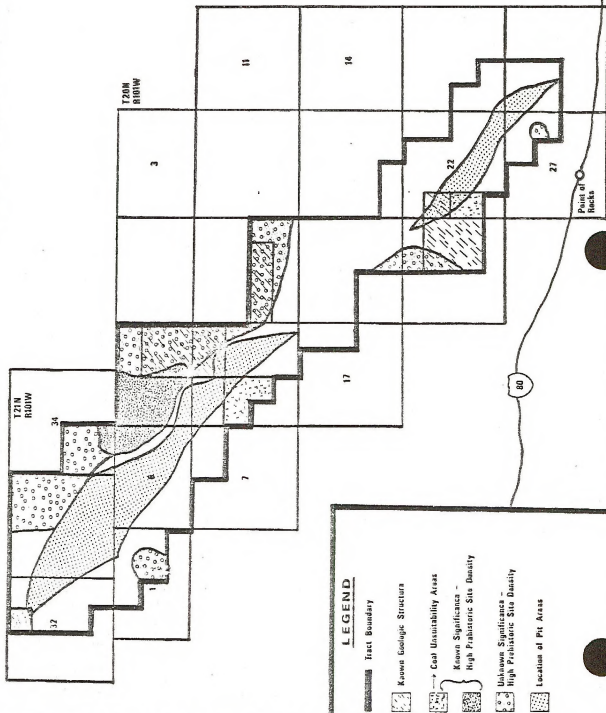


Table 9

## EXISTING AND PROJECTED WAGE AND SALARY EMPLOYMENT AND PERSONAL INCOME IN SWEETWATER COUNTY WITH AND WITHOUT THE PROPOSED ACTION

Class	Year						End of Mine Life (2022)
	1975	1980	1985	1992	1995	2000	
Employment							
Mining Employment <sup>1/</sup>	3,989	7,142	7,680	8,435	8,760	9,295	10,940
Construction Employment <sup>1/</sup>	3,805	2,975	3,810	4,740	5,140	5,805	8,730
Total Employment Without the Proposed Action <sup>1/</sup>	13,913	21,096	26,115	30,730	32,705	36,000	50,490
Direct Construction Employment							
From the Proposed New Mine <sup>2/</sup>	—	—	—	0	0	0	0
Direct Operational Employment From the Proposed New Mine <sup>3/</sup>	—	—	—	40	40	40	40
Indirect Employment <sup>4/</sup>	—	—	—	35	35	35	35
Total Employment With the Proposed Action	—	—	—	30,805	32,780	36,075	50,565
Personal Income <sup>5/</sup>							
Mining Income <sup>5/</sup>	62,339	185,245	199,196	218,779	227,208	241,084	283,751
Construction Income <sup>6/</sup>	59,856	71,169	91,143	113,390	122,959	138,867	208,839
Total Personal Income Without the Proposed Action <sup>5/</sup>	168,121	407,011	503,837	592,874	630,978	694,548	974,104
Income from Direct Construction Employment by the Proposed New Mine <sup>2/</sup>	—	—	—	0	0	0	0
Income from Direct Operational Employment by the Proposed New Mine <sup>3/</sup>	—	—	—	1,037	1,037	1,037	1,037
Income from Indirect Employment <sup>4/</sup>	—	—	—	496	496	496	496
Indirect and Induced Income From Direct Wages Paid <sup>8/</sup>	—	—	—	646	646	646	646
Total Personal Income with the Proposed Action	168,121	407,011	503,837	595,053	633,157	696,727	976,283

<sup>1/</sup> Employment figures for 1975 and 1980 is the total wage and salary employment (not corrected for place of residence) as reported by the Wyoming Employment Security Commission. Employment estimates from 1985 to 2025 are BLM projections.

<sup>2/</sup> Construction employment is based on the following regression equation:

$$\text{Employment} = 62.702 (\text{Coal Production})^{.728}$$

<sup>3/</sup> Operational employment is based on the following regression equation:

$$\text{Employment} = 0.03 (\text{Coal Production})^{0.6}$$

<sup>4/</sup> Construction and operational indirect employment multipliers of 1.568 and 1.917, respectively.

<sup>5/</sup> Income reported in thousands of 1980 dollars.

<sup>6/</sup> Personal income figures for 1975 and 1980 are based on wages and salaries as reported by the Employment Security Commission. Income estimates from 1985 to 2025 are BLM projections.

<sup>7/</sup> Average annual wages paid construction, coal industry, and service sector employees was \$23,922; \$25,937; and \$14,177, respectively, in 1980 (Wyoming Employment Security Commission 1980).

<sup>8/</sup> Indirect and induced income multiplier for construction, operation and service sector income of 1.45, 1.447, and 1.366, respectively (BLM Input Output Model for Sweetwater, Carbon, and Albany Counties).

Table 10

## EXISTING AND PROJECTED POPULATION AND HOUSING REQUIREMENTS IN SWEETWATER COUNTY WITH AND WITHOUT THE PROPOSED ACTION

Class	Year						End of Mine Life 2022
	1970	1980	1985	1992	1995	2000	
<b>Population</b>							
Rock Springs <sup>1/</sup>	11,637	19,434	24,025	28,320	30,145	33,180	46,235
Green River <sup>1/</sup>	4,196	12,507	15,830	18,660	19,860	21,860	30,655
South Superior <sup>1/</sup>	197	586	720	850	905	995	1,400
Point of Rocks <sup>2/</sup>	N/A						
Balance of County <sup>1/</sup>	2,341	8,666	10,775	12,735	13,565	14,955	21,060
Total Sweetwater County Population Without the Proposed Action	18,391	41,723	51,650	60,775	64,685	71,200	99,860
Additional Rock Springs Population From the Proposed New Mine <sup>3/</sup>	—	—	—	182	182	182	182
Additional Green River Population From the Proposed New Mine <sup>3/</sup>	—	—	—	23	23	23	23
Additional South Superior Population from the Proposed New Mine <sup>3/</sup>	—	—	—	17	17	17	17
Additional Point of Rocks Population from the New Mine <sup>3/</sup>	—	—	—	3	3	3	3
Sweetwater County Population with the Proposed Action	18,391	41,723	51,650	61,008	64,910	71,425	100,085
<b>Housing</b>							
Rock Springs <sup>1/</sup>	4,104	7,500	8,770	10,335	11,000	12,110	16,985
Green River <sup>1/</sup>	1,380	4,233	4,915	5,795	6,170	6,790	9,250
South Superior <sup>1/</sup>	132	244	255	300	320	350	490
Point of Rocks <sup>2/</sup>	N/A	137	135	135	135	135	135
Balance of County <sup>1/</sup>	900	2,937	3,405	4,035	4,300	4,750	6,990
Total Housing in Sweetwater County Without the Proposed Action <sup>1/</sup>	6,516	15,051	17,480	20,600	21,925	24,135	33,850
Additional Rock Springs Housing From the Proposed New Mine <sup>3/</sup>	—	—	—	51	51	51	51
Additional Green River Housing From the Proposed New Mine <sup>3/</sup>	—	—	—	7	7	7	7
Additional South Superior Housing From the Proposed New Mine <sup>3/</sup>	—	—	—	5	5	5	5
Additional Point of Rocks Housing From the Proposed New Mine <sup>3/</sup>	—	—	—	2	2	2	2
Total Sweetwater County Housing With the Proposed Action	6,516	15,051	17,480	20,665	21,990	24,200	33,915

<sup>1/</sup> Population and Housing estimates for 1970 and 1980 were taken for the Census of Population and Housing (Bureau of the Census 1980). Projections for 1985 to 2022 are based on employment projections in Table 9 and the 1980 ratio of population and housing to wage and salary employment.

<sup>2/</sup> Population estimates for Point of Rocks were taken from the Sweetwater County Housing Plan (Sweetwater County Association of Governments, June 29, 1981 Sweetwater County, Wyoming. Housing estimates are based on data collected by BLM through housing counts.

<sup>3/</sup> Population from new construction and new employees is estimated at 2.3 and 3.4, respectively (Leistritz and Murdock 1979). New service sector employees are projected to have the same population impact as operational employees, but 25 percent of service sector employment requirements are expected to be met by additional labor force provided by incoming operational and construction workers' families.

<sup>4/</sup> Housing requirements are calculated on the basis of one housing unit per operational and construction employee and 0.75 units per service sector employee.



Table 11

EXISTING AND PROJECTED SCHOOL ENROLLMENTS, HOSPITAL BEDS, AND PARK ACREAGE  
IN SWEETWATER COUNTY WITH AND WITHOUT THE PROPOSED ACTION

Class	Year					End of Mine Life 2022
	1980	1985	1992	1995	2000	
School Enrollments <sup>1/</sup>						
District #1	5,640	6,980	8,213	8,742	9,622	13,497
District #2	3,484	4,315	5,077	5,403	5,948	8,343
Total Enrollments Without the Proposed Action	9,124	11,295	13,290	14,145	15,570	21,840
District #1 Additional Enrollments From the Mine <sup>2/</sup>	—	—	58	58	58	58
District #2 Additional Enrollments From the Mine <sup>2/</sup>	—	—	6	6	6	6
Total Enrollments With the Proposed Action	9,124	11,295	13,354	14,209	15,634	21,906
Hospital (Beds) <sup>3/</sup>						
Total Beds Without the Proposed Action	100	124	146	155	171	240
Additional Beds Needed From the Mine	—	—	—	—	—	—
Total Beds With the Proposed Action	100	124	146	155	171	240
Parks (Acres) <sup>4/</sup>						
Rock Springs	340	421	497	529	582	816
Green River	37	46	54	57	63	89
Superior	1	4	4	5	5	7
Total Acres Without the Proposed Action	378	471	555	591	650	912
Additional Acres Required in Rock Springs	—	—	3	3	3	3
Additional Acres Required in Green River	—	—	—	—	—	—
Additional Acres Required in South Superior	—	—	—	—	—	—
Total Acres Needed With the Proposed Action	378	471	558	594	653	915

<sup>1/</sup> Enrollment projections are based on the 1980 ratio of enrollment to employment and employment projections in Table 9.

<sup>2/</sup> School enrollments from new mine employees are estimated at 0.08 children per construction worker and 1.6 children per operational worker (Leisritz and Murdock 1979). Sixty percent of children were estimated to be of school age (pers. comm., Bartenhagen 1982).

<sup>3/</sup> Hospital bed projections are calculated using the existing ratio of 2.4 hospital beds per 1,000 population.

<sup>4/</sup> Future park acreage needs are projected using the current ratio for Rock Springs, Green River, and South Superior of 57, 346, and 195 populace per acre of park (Wyoming Recreation Commission).

Table 12

EXISTING AND PROJECTED WATER SUPPLY AND SEWAGE TREATMENT CAPACITIES IN  
ROCK SPRINGS AND GREEN RIVER WITH AND WITHOUT THE PROPOSED ACTION

Class	Year					End of Mine Life 2017
	1980	1985	1992	1995	2000	
Domestic Water Supply (capacity) <sup>1/</sup>						
Rock Springs	8.00	8.00	8.00	8.25	8.75	10.00
Green River	10.00	10.00	10.00	10.00	10.00	12.70
South Superior <sup>2/</sup>	0.11	0.13	0.15	0.16	0.18	0.34
Total Capacity Without the Proposed Action	18.11	18.13	18.15	18.41	18.93	23.04
Additional Capacity Needed in Rock Springs <sup>3/</sup>	—	—	0.04	0.04	0.04	0.04
Additional Capacity Needed in Green River <sup>3/</sup>	—	—	0.01	0.01	0.01	0.01
Additional Capacity Needed in South Superior <sup>3/</sup>	—	—	—	—	—	—
Total Capacity Needed With the Proposed Action	18.11	18.13	18.20	18.46	18.98	23.09
Sewage Treatment Capacity <sup>1/</sup>						
Rock Springs	2.75	3.75 <sup>4/</sup>	3.75 <sup>4/</sup>	3.75 <sup>4/</sup>	4.00 <sup>4/</sup>	5.60
Green River	1.50	3.00	3.00	3.00	3.00	3.10
South Superior <sup>2/</sup>	0.06	0.08	0.09	0.09	0.10	0.10
Total Capacity Needed Without the Proposed Action	4.31	6.83	6.84	6.84	7.10	8.80
Additional Capacity Needed in Rock Springs <sup>3/</sup>	—	—	0.02	0.02	0.02	0.02
Additional Capacity Needed in Green River <sup>3/</sup>	—	—	—	—	—	—
Additional Capacity Needed in South Superior <sup>3/</sup>	—	—	—	—	—	—
Total Capacity Needed With the Proposed Action	4.31	6.83	6.86	6.86	7.12	8.82

<sup>1/</sup> Sewage and Water Treatment Capacity is reported in million gallons per day MGD (Wyoming Industrial Siting Administration 1981).

<sup>2/</sup> Figures are reported as actual usage based on an average of 151, 310, and 180 gallons per person per day for Rock Springs, Green River, and South Superior (Wyoming Water Development Commission 1981).

<sup>3/</sup> Figures are reported as actual usage based on a generation rate of 100 gallons per person per day.

<sup>4/</sup> Rock Springs is planning to double its current 2.0 MGD capacity to 3.75 MGD, and Green River is planning on doubling its current 1.50 MGD capacity (Rocky Mountain Energy Company 1981; Baseline socioeconomic descriptions and projections for Sweetwater and Carbon Counties, Wyoming. Prepared by Denver Research Institute and Browne, Bortz and Godington, February 1981.)